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Carlton's Book
of the Farm
1912

ILLINOIS.

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HOW TO ORDER AND CONDITIONS OF SALE—Be careful to write your name and address plainly, as well as giving your shipping station. Your special attention to this is requested, as sometimes orders reach us minus the sender's name and address.

HOW TO SEND MONEY—If you send actual cash, have your letter registered—but this is not always a safe way of remitting. Send Post Office Money Order, Express Money Order, Bank Draft, Stamps if under a dollar, or your personal checks. The latter is the most convenient way for you to remit—and is quite satisfactory to us.

C. O. D. SHIPMENTS—We will, if requested, ship orders to the value of \$5.00 or over C. O. D.

SHIPMENT OF ORDERS—Receipt of every order is acknowledged the same day as received, and goods are shipped with the utmost promptitude. Should you fail to receive shipment promptly, make inquiry of your local Railroad Agent, as goods are sometimes on hand at the station without customers being advised. If it is not at the station—write to us at once, stating just what you ordered and whether you enclosed money in any form. We shall at once investigate and advise you.

SAFE ARRIVAL OF SHIPMENTS—If your shipment arrives in bad shape, is damaged or a part lost, have your railroad agent note in writing the exact damage or loss on your paid Freight Bill. Send this on to us, and we will adjust matters with the Railroad Company for you.

OUR RELIABILITY—Our New Breeds of Oats, Wheats and Barleys are sold under a positive guarantee which binds us, and provides absolute protection for our Customers. We want your business, and to get this we must have your confidence. You cannot afford to take any chances on Seed Grain, so send us your orders, and avoid risks as our Guarantee gives you perfect protection.

OUR FINANCIAL STANDING—We refer you to the Continental Commercial National Bank of Chicago; R. G. Dun & Co., and the Bradstreet Co., Commercial Agencies.

OUR GUARANTEES

ALL GRASSES AND CLOVERS offered in this Catalogue are sold on their merits. We never over-estimate, neither give false Descriptions in any way, and although same are selected with the utmost care we give no warranty, expressed or implied, neither can we accept responsibility for crops.

GARTONS NEW BREEDS OF OATS, WHEATS AND BARLEYS. "We guarantee our Pedigree Grain to be perfectly graded, clean and absolutely free from **Wild Oats** or **Weed Seed**, and that all orders shall be filled exactly to sample." If desired, we will ship all orders of four bushels and up C. O. D., subject to Inspection before making payment. The Purchaser has the right to return at our Expense if this guarantee is not fulfilled.

Cable Address: "Abundance"

GARTON-COOPER SEED CO.*Field Seed Breeders—Seed Experts—Seed Growers*Head Office and Warehouse:
Sugar Grove, Ill.Branch Office:
Chicago, Ill.*Address all communications to Sugar Grove, Ill.*

TO OUR FRIENDS AND CUSTOMERS:

**THE WATCHWORD OF OUR BUSINESS IS
SINCERITY**

In presenting the 1912 Edition of our Book of the Farm, we wish to thank you, one and all, very sincerely for your valued orders and recommendations during the past year, have enabled us to make the same a Record Year.

We wish to publicly acknowledge our indebtedness to all our friends and customers who have given us such magnificent support since we first started out on our Great Campaign in 1907 for Better Seed and Bigger Crops. Although our efforts improve Farm Crops generally were not commercialized until 1907, we were stimulated in our Work and valuable assistance was rendered to us in the Testing Out of New Breeds of Oats, etc., by the Department of Agriculture at Washington. One of our most treasured possessions today is a Medal and Diploma awarded to us for "Specific Merit" in the prolonged course of Artificial Fertilization in Cereals at the World's Fair and Exposition, Chicago in 1893.

Having as we know secured your patronage and confidence, we have, judging by the enormous number numbers of unsolicited Testimonials we continue to receive—we are not going to rest on our laurels but are right now busy at work, endeavoring to deserve your further favors and your good word to that neighbor of yours who has not yet dealt directly with us.

You will find in this Book of the Farm some real useful information, so read every word of it, as it will pay you. In it we tell you about the Grain we offer of our own breeding. Now mark that word BREEDING. There is a whole lot of difference between breeding and just raising a crop of Oats, Wheat, or Barley from simply selected seed. Refer to pages 14 and 15 and you will see what this difference is.

We lay particular stress upon the absolute reliability of the figures quoted in this book, as well as every statement or claim we set forth, because they are wide open to your verification.

Those friends who are not yet our customers **cannot fail to realize** that where others are reaping Golden Harvests there should surely be some rich sheaves for you. The facts prove this to be so.

We prove that our customers make money continuously.

The reason is quite simple. We are the original farm plant Breeders, and the largest and most successful Grain Breeders in the world. We have a lifetime's experience, powerfully equipped organization, the most modern Seed Cleaning Plant known to Science, and the unique advantage of personally growing all the new and regenerated breeds of small grains offered herein.

Competition does not worry us a particle. Our only desire is to make good every statement we make, and retain the confidence of our customers. And this we will continue to do.

A word as to prices. You can no more tell the value of Seeds on paper than you can tell the value of a Horse or any other animal on paper. Take our advice, ask for samples, compare them and pass your order to the man who offers you the best value, and we make no secret of who that will be, for no one can offer you better samples than we can, because we are Seed Specialists with thirty-five years practical experience back of us and handle nothing else but High Grade Field Seeds.

ALWAYS REMEMBER THAT GRAND OLD SAYING: "AS A MAN SOWS SO SHALL HE REAP."



Boost for Better Oats

About Regeneration

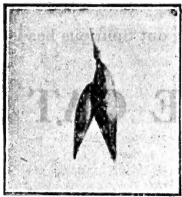
The Garton Way

Pedigree Counts Just As Much In Oats As In Live Stock

Prior to 1880, the only method employed for improvement of Oats was the Selection of the best heads or plants in a plot or field Crop.

Exhaustive investigations by the World's foremost Grain Experts have proved that this process did not invigorate a Crop nor increase its Yield, but simply maintained the purity of the variety.

In reproducing itself from its own Blood such as is natural, the Oat produces a Seed containing the embryo germ, which contains a sufficient quantity of plant food to feed its young until the roots are sufficiently established. It is then enabled to extract nutriment direct from the soil. This is the only function which is performed by the grain.



Common White Oat.

The whole of its reproductive vitality is contained in the germ cells alone. For instance, the food contained in the grain corresponds to the white of an egg, or milk in the udder of a cow, while the germ corresponds to the chicken within the egg or calf within the cow.

It will be readily understood from this comparison that **the future plant is dependent entirely upon the Vitality contained in the individual embryo germ.** It is not affected by any unusually fine, plump external appearance of the actual grain and food store.



R. S. S.

The Germ is the Vital Reproductive Organ of all forms of dormant plant life, being composed of the latent cells which represent the various parts of the future plant. It is in these latent cells of the germ that all the Character and Vitality of the future plant are represented in pretty much the same way as of the future chicken is represented in the germ of the egg, or the calf in the cow.

Extensive experiments carried out during the past thirty years have **conclusively proved that the only means of maintaining the vigor and increasing the yield of Oats is by actual invigoration of the embryo germ, by the process of Scientific Regeneration, which can only be effected by mating the male and female of known and recorded ancestors.** It is the same method practiced by breeders in the Animal Kingdom, where the infusion of new blood is an absolute necessity, and can not be obtained by selection or grading. These latter methods, good in their way, can only hope to purify.

Grading and purification, although good, cannot possibly have any bearing on the Stamina of the future plant and crop. **Scientific Regeneration is the only system which invigorates the germ cells, producing a more robust plant and increasing the yield.**

Trials conducted in all the Cereal growing countries of the world, have positively proved that Regeneration of Oats increases the yield from 20% to 40% over original varieties.

We are the only firm who are Regenerating Oats by Scientific Breeding, and as the value of Regeneration positively depends upon nearness to the original Cross, owing to Nature's law of in-breeding, **it is absolutely essential that every grower should secure his supply for a Seed Patch direct from the Originators, so that he may be sure of getting the latest Regenerated Strain.**

Professor L. H. BAILEY, of Cornell University, says:

"Thus it comes that in-breeding tends to weaken a type and cross-breeding tends to strengthen it because it constantly re-vitalizes the offspring."

Extract from the "FARMER AND STOCKBREEDER," February 28, 1910:

"The improved Stocks produced by the old system of selection, although called pedigree stocks, should not be compared with the modern system of regeneration by actual breeding, as the former was a system of selection only. No true breeding, as now practised in the modern method, entered into this process of improvement—the former was simply selecting a Stock, whilst the latter is true breeding as practised in highly-bred stocks in the animal kingdom."



A Field of President Oats on our own farm. Notice the two men following the binder roguing or picking out Spurious heads. This is the only means of keeping the variety absolutely pure.

GARTONS NEW BREED OF WHITE OAT "PRESIDENT"

**Heaviest Yielding Oat Ever Introduced. Grain of Extra Milling Quality
Robust Constitution. Great Rust Resister**

The undeniable merit of this grand Oat has pushed it into the foremost ranks of America's great Oats, and today it enjoys that popularity it so richly deserves. Since its introduction by us in 1908 it has never once gone back on the farmer, but has always made good.

This New Oat has proved itself to be the best all round variety for those Sections that are likely to strike drouths. Indeed, no Oat does half so well under hot, dry and otherwise unfavorable conditions as President.

The straw is strong and stands well when other varieties would have been badly lodged. The heads of the Grain are open and very large, something on the order of Regenerated Swedish Select, but rather longer.

Planted alongside of older varieties, it has yielded more than double the number of bushels per acre. For instance, last season it yielded over 60 bushels to the acre in a drouth affected region, whilst ordinary Oats yielded only 23 bushels under precisely the same conditions. In other Districts our customers have reported yields of upwards of 100 bushels per acre.

All the Seed we offer is raised by us and the Crops are so good that we are enabled to make such prices, as are well within the reach of every Farmer. Another advantage which cannot be over-estimated is the fact that the seed offered by us is guaranteed to be absolutely pure. So confident do we feel about this that we make a practice of shipping our Seed Oats C. O. D., subject to inspection, with a straight guarantee that if Seed is not up to sample or if there is one weed seed in the shipment, the customer is not to pay one cent but fire the Oats back at us at our sole risk and expense.

PRICES: (Bags free) f. o. b., Chicago or Minneapolis.

IMPORTED STOCK
2 bu. of 32 lbs. and upwards, \$2.00

AMERICAN GROWN STOCK
1 to 6 bu. of 32 lbs., \$1.50 per bu.
6 to 20 bu. of 32 lbs., 1.35 per bu.
20 bu. of 32 lbs., 1.25 per bu.

Write for Special Quotation in Large Quantities.

Wahpeton, N. D.

Very much pleased with increased Yield, early maturing, and appearance of Gartons Oats generally, which are large, plump and heavy. Yielded more than 100% more than the White Russian Grown alongside.—C. B. Kidder.

Tilden Farms, Delavan, Wis.

With reference to your new President Oats, I believe it to be the best on the Market. The Seed furnished me was fine, absolutely free from Weeds, full and plump. Germination was much better than other varieties I bought, and the Yield averaged 12 bushels more per acre than any other Oats I had on the Farm.—K. J. Schultz.

In 1901, Assistant Secretary W. M. Hays, the renowned plant breeder, late of the Minnesota Experiment Station, visited the extensive Farm Plant Breeding Grounds of Garton Bros., in England, and the following is an extract from his report in the American Year Book of 1901:

"Garton Bros., of England, have hybridised various species of forage grasses and made species new to science, and their work with oats, wheat and other crops is quite as wonderful."

GARTONS NEW BREED OF WHITE OAT

"Regenerated Swedish Select"

LATEST REGENERATED STRAIN FOR 1912

This Strain Has Been Raised by the Gartons From a Single Proven Plant

What we now offer is the latest Regenerated Strain for 1912 and this Strain can only be obtained direct from us, as we hold the entire stock of this particular strain.

Insist on getting the latest genuine regenerated strain, as the value of Regenerated Seed is based on the number of years it has been grown since the Original Cross, that is, since the Male and Female plants were hand fertilized in such a manner as is described on page 15. **"How Grain is Regenerated."** It is most important when buying Regenerated Swedish Select for intending Purchasers to **insist on knowing the year the strain was introduced by us**, as we are the only Originators of this New Oat, and the information can be furnished by the Seller, who will doubtless hold his original invoice which was received at time of Purchase.

The illustration shows four panicles or spikelets at different stages of productiveness, together with the kernels produced by each.

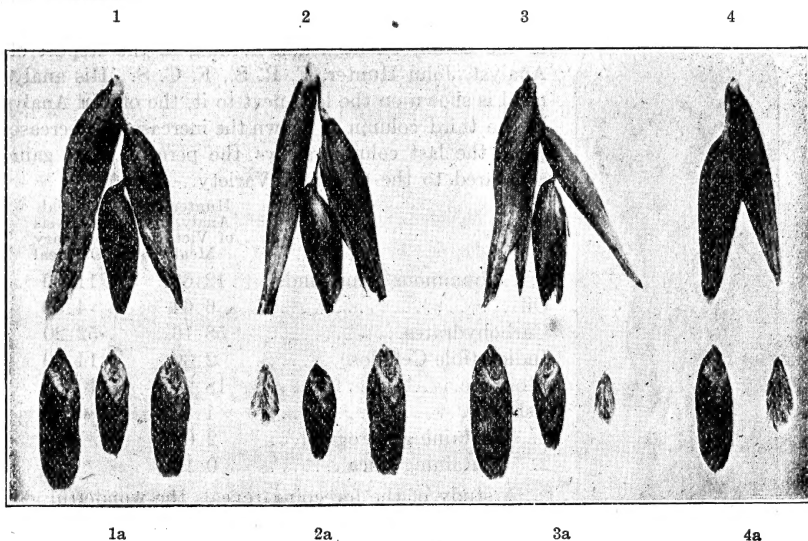
No. 1 represents a panicle from a vigorous regenerated stock. The kernels produced are shown separate at the base, and are fully developed.

Nos. 2, 3 and 4 are panicles from weak and degenerate stocks.

No. 2 illustrates where the leading or largest floret has failed to fertilize and produce a kernel, only the decayed ovary being found inside the shell as shown at Fig. 2a.

In No. 3 panicle the second sized kernel has failed to fertilize, and in No. 4 panicle, in addition to the failure of the second sized floret, the third floret of this panicle has entirely failed to develop.

This illustration demonstrates how yields are reduced when crops are grown from weak and degenerate strains, and proves the necessity of procuring the latest regenerated strain every second or third year.



The tendency of all "Highly Bred" Pedigreed Animals and Plants is to deteriorate in stamina, productiveness and quality, **unless the maximum degree of development reached is kept up by continued Scientific Breeding.**

The Regenerated Stocks of Farm Plants produced by the **Garton System** of continued Scientific Breeding, are now recognized by all practical Farmers to be as essentially necessary to keep up the crops of the Farm to their Maximum powers of production, as it is to introduce High-Bred Pedigreed Males into Herds to arrest deterioration, and bring back same to original state of Perfection.

The Farmer who fails to keep his farm crops invigorated up to their Maximum power of Yield by the periodical introduction of these scientifically Regenerated Stocks, loses in the same proportion as the Stock Farmer who allows his stock to deteriorate through Breeding from Worn-out Degenerated Animals. Therefore, to secure the best yields, **Stock Seed containing new Blood must be obtained from time to time**, as this Cross-Bred variety (like Live Stock when allowed to inbreed) gradually but surely runs back to the original varieties from which it was bred.

The deterioration of all highly bred cereal crops is proved by the reduced number of Florets produced on each ear and the large number of unproductive or blind Florets which fail to fertilize and produce fully developed grains.

After reading this, a Farmer will readily understand that he cannot afford to grow ordinary Strains when the Genuine Newly Bred Oats can be had from the Originators at little more than the cost of ordinary Seed. "Depend upon it" Regeneration means to you more bushels per acre, and that is the point we cannot afford to over-look. **It is results that count.** The actual First Cost in any case does not cut much figure and it is up to every Farmer to see that he is not fooled by using uncleaned, Light and Chaffy Seed, which goes back on him at harvest and fouls his land.

Minooka, Ill.

I am more than satisfied with your regenerated Swedish Select Oats. They Yielded 66 bushels per acre against 48 bushels of Silver Mine grown under same conditions, and were considerably earlier. They have much better quality than any other in this vicinity. If you have a Winter Wheat suitable for this section, send sample and price at once.
Oliver Bell.

PRICES: (Bags free), f. o. b. Chicago or Minneapolis.

IMPORTED STOCK

\$2.00 per bu. of 32 lbs.

AMERICAN GROWN STOCK

1 to 6 bu. at \$1.50 per bu.

6 to 20 bu. at \$1.35 per bu.

20 bu. lots at \$1.25 per bu.

Write for quotations on larger quantities.

Elbridge, N. Y.

Your Regenerated Swedish Select Oats yielded me 77 bushels per acre against 50 bushels of ordinary Oats grown side by side under same conditions. Your New Oat was the best of any grown in this locality this year.

G. S. Doman.

GARTONS NEW BREED OF BLACK OAT

"VICTOR"

Heaviest Yielding Black Oat in The World.

Grain Double The Size of Any Other Black Oat In The World.

Strongest Constitution Oat In The World.

47% More Feed Value Than Any Other In The World.

This New Oat is bred from six Different parents, two of which are Fall Oats. This accounts for the extreme hardness of Constitution, which has surprised many Old Time Farmers.

It has an open branching head containing wonderfully thin hulled Berries of a jet Black Color, which retain their jet black Color, Season after Season. The Straw is of Medium Length and very fine in Quality. As for the Feeding Value of the Grain, we need add nothing to the Report of the Celebrated Agricultural Analyst, John Hunter, F. R. S., F. C. S. His analysis of the composition of the meal is shown on the left; next to it, the official Analysis of the ordinary Oat Meal; in the third column is shown the increase or decrease in the various constituents, while the last column shows the percentage of gain or loss by the New Oat as compared to the Ordinary Variety.



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	Hunter's Analysis of Victor Meal	Official Analysis ordinary Oatmeal	Gain or Loss	Per cent. of Gain or Loss
1. Albuminous compounds.	12.68	11.00	1.68	gain of over 15%.
Oil.....	6.64	4.50	2.14	gain of over 47%.
Carbohydrates.....	58.16	52.20	5.26	gain of over 11%.
Indigestible Cellulose.....	2.36	14.50	12.14	loss of over 83%.
Moisture.....	18.25	10.50	7.78	gain of over 72%.
Ash.....	1.88	6.80	4.92	loss of over 72%.
1. Containing nitrogen	2.03			
2. Containing silica	0.12			

A study of the foregoing reveals the wonderful gain made in the desirable food constituents and proves its great feeding value.

In turning in this report, Mr. Hunter remarks: "It is exceedingly rich in albuminoids, oil and digestible carbohydrates, and the indigestible cellulose is lower than I have ever found in oats."

The Yield from this New Oat has been enormous, running all the way from 60 to 105 bushels per acre, in many cases doubling the Yield of Older Varieties, which have been tried out side by side under same conditions. **We recommend this more particularly for Southern Iowa, Central and Southern Illinois, Missouri and Kansas**, in which Sections, we can say without fear of contradiction, it is easily the best all round oat any Farmer can raise, whereas the Quality of both Straw and Grain go to make this Oat the Stockman's Ideal.

PRICES: (bags free) F. O. B., Chicago or Minneapolis.

IMPORTED STOCK

\$2.25 per bushel of 32 lbs.

AMERICAN GROWN STOCK

1 to 6 bushels at \$1.75 per bu. of 32 lbs.

6 to 20 bushels at 1.50 per bu. of 32 lbs.

20 bushels at 1.40 per bu. of 32 lbs.

Write for special Quotations on larger Quantities.

Your Black Victor Oat is a splendid variety. The Season was the driest in the History of this Locality, yet it withstood the drought fine. Many Fields of Local Varieties were too poor to pay for harvesting. Victor yielded 22 1/2% more Oats than Early Champion which was grown along side. I intend to sow an increased acreage next year.—H. J. Switzer.

Indianola, Ia.

The highly successful results which have been obtained by our Regenerated Breeds against all others in open trial and competitions, and the eminently satisfactory reports from customers in all parts of the world entirely endorse all our claims.

RE-CLEANED SELECTED SEED OATS

Having received numerous requests for Pure Re-Cleaned Ordinary Seed Oats, we have secured from reliable Growers Selected Strains of the following which we can recommend. Owing to Stocks being Limited, we can only offer so far as unsold.

EARLY SECTION

EARLY CHAMPION. This Oat is well suited for those Districts where larger Berried Varieties are too late in maturing to give best Results. Our Stock has been raised by one of the most careful Growers in the State. Price per bushel \$1; 8 bushels and upwards, 85c.

KHERSON. Very early variety of the 60-Day Type. First introduced by the Nebraska Experiment Station. Has given excellent results in Southern Iowa, Nebraska, Kansas and Missouri, in which States we strongly recommend Farmers requiring a real early Oat to make sure of their supplies without delay. **Bear in mind this is a pure strain.** Price per bushel \$1; 8 bushels and up, 85c.

SIXTY-DAY. We have Improved this Oat considerably, our Strain being raised from best individual heads. Although the Straw is short, it is quite strong. In addition to the continuous steady Yields obtained these points go to make a very desirable early Oat. Price \$1 per bu.; 8 bu. and upward, 85c.

LATE SECTION

MINNESOTA No. 26. A very popular variety in the Northwest, with a grain something on the order of Swedish Select, but rather longer Straw is Strong and always of Good Quality. Price \$1 per bu.; 8 bu. and upward, 85c.

BIG FOUR. This Oat has been raised in all the Grain Sections of the State for more than 15 years. An excellent Straw. Grain of Swedish Select Type and raised especially for us by one of the best known Farmers in the Small Grain World. Price per bu. \$1; 8 bu. and upward, 85c.

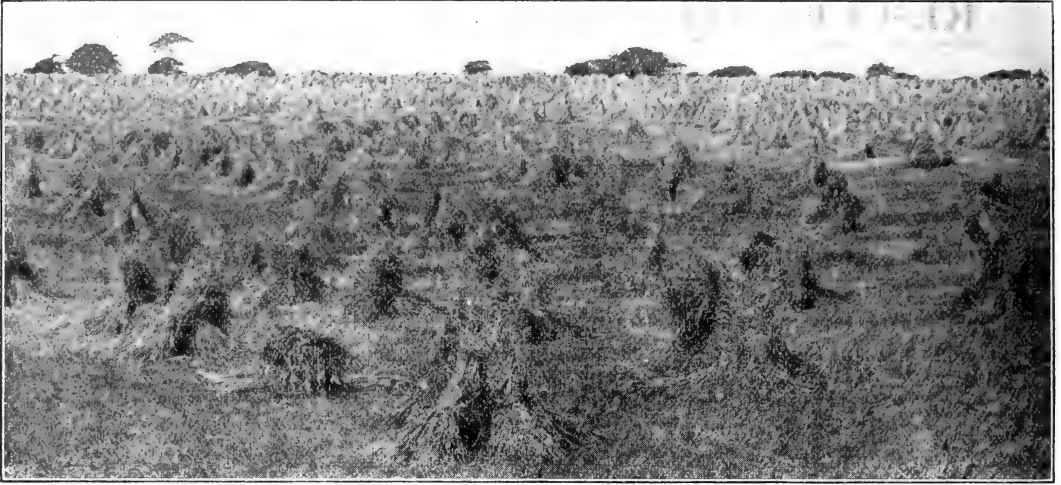
ROOSEVELT. This is also an Oat of the Swedish Select Type and, when grown Side by Side there is very little difference. For this Reason we have provided a very limited supply, which we will be glad to supply so far as unsold at \$1 per bu.; 8 bu. and upward, 85c.

SWEDISH SELECT (Wisconsin No. 4). This has been described by the U. S. Department of Agriculture as the best American Oat, and prior to the Introduction of Regenerated Swedish Select, we would unhesitatingly endorse this finding. In our vast Experience we find that wherever Man grows Oats he is acquainted with the extraordinary merits of this valuable variety. It is safe to say that in Northern Iowa, Northern Illinois and throughout the Northwest this Oat has no equal with the exception of Regenerated Swedish Select, which after all is the same Oat re-bred by the infusion of New Blood. This, of course, explains the immense Yielding capacity of Regenerated Swedish Select. Price \$1 per bu.; 8 bu. and upwards, 85c.

MINNESOTA No. 6. This is a Universal Favorite, grown in practically every Section of the United States. Produces a good thick meaty Berry, and is particularly well suited to Minnesota, Northern Iowa and Wisconsin. Price per bu. \$1; 8 bu. and upwards, 85c.

LINCOLN. This is becoming quite a popular Oat and would best be described as Medium Early. Strong Straw and heavy Yields. Price \$1 per bu.; 8 bu. and upwards, 85c. F. O. B. Chicago. All Bags Free.

Winner of the \$1000.00 Cash and Championship of American Continent at the New York Land Show



A Wonderful Crop of New Marquis Wheat.

NEW BREED OF WHEAT, "MARQUIS"

(Bred by Dr. Saunders, of Ottawa)

Hard Spring Wheat Of Extreme Earliness.

Straw Very Strong And Excellent In Quality.

An Ideal Millers Wheat. Enormous Yields.

We have the Honor of offering in this Country for the first time this wonderful New Hard Spring Wheat, which we believe is the best of Dr. Saunders' New Wheats that have yet been placed in commerce.

We were attracted by the extreme earliness and enormous Yielding Capacity of this New Wheat as at first tested out in our Trials. It made such a good record that we grew same on our own Farms in the Northwest last Season with gratifying results. Although other well known Wheats rusted considerably, Marquis was harvested first of all Wheats without Blemish or a trace of Rust.

Mr. C. E. Saunders, Cerealist to the Canadian Government, mentions in his Annual Report that Samples have reached his office grown in Sask, weighing 66½ lbs. per bushel in one case, 65 lbs. per bushel in the second case and 64¾ lbs. in the third case.

At the Brandon Experiment Farm no less than 200 bushels were harvested from a four acre field.

Not only is this wheat Rust Resistant and very early, but a still further point in its favor is that the Straw Grows only to a Medium height and has never been known to lodge.

It is Beardless in Character, 8 to 10 days earlier than Red Fife, with shorter Berries than that variety—always very plump. From the Records this Wheat has already made we most cheerfully give it our personal endorsement and recommend it to our friends as a real money maker.

There is an enormous demand for Seed of this valuable addition to our Spring Wheats, from people who have actually seen growing crops. Surely this is the best endorsement that could be given in its favor.

Prices. Bags free, f. o. b. Chicago or Minneapolis.

½ bu. of 30 lbs., \$3.00. 1 bu. of 60 lbs. and upwards at \$5.00

GARTONS SELECTED EARLY JAVA WHEAT

An extremely early Wheat specially selected by us. Has yielded 40 bushels per acre. Owing to its great Yielding capacity this has become a general favorite in Iowa where its excellent record requires no further endorsement. It has proven itself a real friend to the Farmer. Our own selected Stock is unfortunately limited, so our Friends are advised to put in their reservation right now for sufficient to seed a Patch to provide Seed for the next Season's general sowing.

Prices. Bags free, f. o. b. Chicago or Minneapolis. Per bu. of 60 lbs., \$2.50.

GARTONS NEW BREED OF WHEAT

➤ Regenerated Red Fife



110

This is the First Regenerated Strain of any Wheat to be offered in this Country, and from Reports to hand from Customers to whom we supplied Seed last Season we find it easily out-yielded Ordinary Spring Wheats. And at the same time it proved itself to be practically **immune from rust**, which is a feature that has established a Reputation for it as being the greatest Rust Resister on the market.

This wheat has the advantage of being truly **Pedigreed**, and as Blood will tell, the yields obtained from this wheat are a living testimony to its great Merits. We say this wheat is Pedigreed. Mark that word "Pedigreed," as we mean what we say. Many Seed Merchants seem to confuse Pedigree or Breeding with ordinary Selection which is an entirely different thing. See pages 14 and 15, where the difference is described.

This Regenerated Strain has taken us years to raise and although our Outlay in time, skill and money is simply enormous, we ask very little more for the Foundation Stock than ordinary seed prices. To secure a profit, therefore, we must handle very large quantities. We depend upon our Customers satisfied with this New Wheat to extend their patronage for other Field Seeds, as we wish to work hand in hand with America's up-to-date Farmers for the betterment of this Important Crop. Space forbids our reproducing many of the unsolicited Testimonials we have received from our friends, but we have the satisfaction of knowing that this wheat has been recommended by practically every man who tried it last year, which is undoubtedly the very best advertisement we could have.

Depend upon it, you will be amply repaid if you invest in a matter of 12 bushels of this New Wheat as it is only reasonable to expect that the increased Yield will come pretty near paying the difference between Ordinary and Pedigree Seed the first season. You will have the satisfaction of knowing you have all the seed you require for the following year at the ordinary market price.

Net results count and a trial will convince you that it certainly pays big to raise crops of Pedigreed Wheats. Prices, f. o. b. Chicago or Minneapolis, 1 bu. of 60 lbs. \$2.75 per bu. 6 bu. and upwards \$2.50 per bu.

GARTONS SELECTED BLUE STEM

Blue Stem is acknowledged to be the leading Spring Wheat throughout the North West. The Description and Merits of same are too well known for us to further emunerate. This has always been a successful Exhibition Wheat, taking first premiums at most of the county fairs in the North West. We particularly recommend this throughout Minnesota and Wisconsin.

Our stock was raised by a reliable grower and we have every confidence in recommending it to any one wanting to sow Spring Wheat. The price quoted is very reasonable for the quality of Seed we are handling. Owing to the Wet Fall there is bound to be a larger acreage of Spring Wheat sown than usual. We recommend our friends to put in their order for this particularly Fine Strain without delay, and thus avoid disappointment. Price, f. o. b. Chicago or Minneapolis. Bags free. 1 to 4 bushels \$2 per bu. of 60 lbs. 4 bu. and upwards \$1.80 per bu. of 60 lbs.

We are the only firm producing regenerated breeds of farm plants by scientific breeding. The Latest Regenerated Strains can therefore be obtained direct from us only.

GARTONS NEW BREED OF SIX ROWED BARLEY, NO. 158

The Heaviest Yielding Barley Yet Produced.

The Best Quality Barley In The World.

Extremely Early And of Immense Strength of Straw.

Gartons No. 158 is a New Breed of Six Rowed Barley, which stands out pre-eminent as the **King of Barleys**. It is the first of a series of what may be termed a new class.

In trials conducted by independent farmers, it has easily outyielded Oderbrucker while retaining all the good points of that useful variety. The grain is of the fine wrinkled quality so much sought after by maltsters for brewing purposes, while from a hog feeder's standpoint, there is no better food on earth.

This is a positively new breed of six rowed Barley obtained by breeding, that is, mating the males and females by hand fertilization—three parental types being used to secure the cross. We find it necessary to say this because of an idea which exists in the minds of many that new breeds are obtained by careful selection of existing types. This is a fallacy which must be dispelled.

It has been bred by a composite cross of two and six rowed varieties, embodying the quality of the two rowed type with the productivity of the six rowed type.

Just one trial will convince you, whether you grow Barley on a Small or Large Scale, that it certainly pays every Grower to raise this New Breed. First of all, because it easily outyields all others, secondly, because the Straw is Stronger and more dependable, thirdly, because it is a better Malting Barley, and fourthly, because it is absolutely a pure Strain and, unfortunately, purity of Strain is very difficult to secure.

LET US CONVINCE YOU. Test this remarkable Barley side by side with your own varieties. You will be perfectly safe in this, as Barleys cannot mix, being inbreeders, like all Small Grain. **Prices, Bags free, f. o. b. Chicago or Minneapolis.**

IMPORTED

\$3.00 per bu. of 48 lbs.

WISCONSIN GROWN

\$2.50 per bu. of 48 lbs.



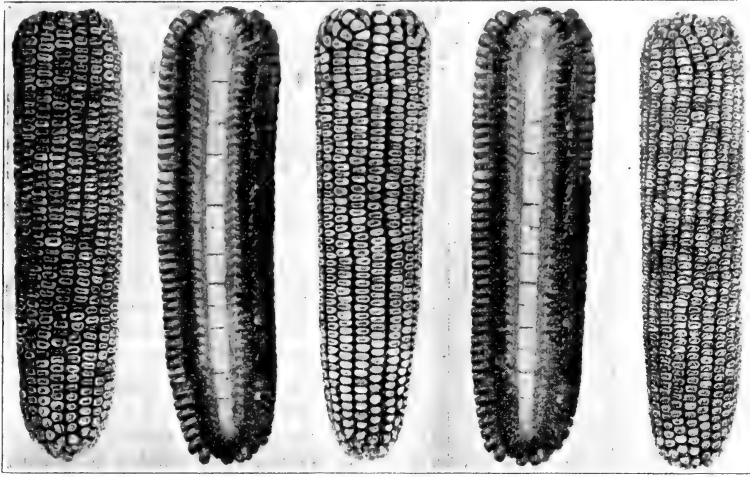
Typical heads of Garton No. 158 Barley

ODERBRUCKER, WISCONSIN NO. 155

THIS VARIETY HAS BEEN PRONOUNCED BY PROF. R. A. MOORE THE GREATEST BARLEY FOR FEEDING AND MALTING IN THE UNITED STATES. This variety was introduced from Ontario 14 years ago. Prof. Moore of the University of Wisconsin since that time has been constantly working upon it and has pronounced it to be a remarkable variety with a very stiff Straw and a Great Rust Resister. On reference to Bulletin No. 212 issued by the University of Wisconsin, it will be found that this variety has been tested out for 10 consecutive years and yielded the enormous quantity of an average of 50 bushels per acre. **Think of this**, and the Price of Ordinary Barley. At present prices, on Farms which can raise Barley, land must be worth more than double what is being asked today. Our stock has been raised specially for us in Wisconsin by a noted Grower. Take no chances therefore, but come to us, who can supply the Genuine Oderbrucker. **Price, \$2.50 per bu. of 48 lbs. f. o. b. Chicago or Minneapolis. Bags free.**

The process of scientific regeneration invigorates the germ cells and warrants a more robust and productive breed of oats. Extended trials have shown that these regenerated strains yield from 20 to 40 per cent heavier crops than ordinary oats.

GARTONS SELECTED SEED CORN



This is our first Season to handle Seed Corn in a commercial way. For several years, however, we have been growing and selecting the best varieties that money could buy, our foundation Stocks without exception being obtained from the various National Corn Expositions, where the very best individual Ears of Corn in the whole world were staged side by side. This was an ideal opportunity of starting in right, of which we gladly availed ourselves. The foundation Stock of course, cost an enormous amount of money, but we have never regretted the investment then made, as our object is to offer to our customers absolutely the best Seed the Earth produces.

All the varieties catalogued by us have been grown specially for us from our grand foundation Stock, and every individual Ear we offer has been passed by an Expert who has spent a lifetime among Seed Corn.

REIDS YELLOW DENT

Wherever Corn is raised, Reid's Yellow Dent is well and favorably known. It is the Stock from which all other Dent Corns have been selected and re-selected. It is a household word amongst farmers generally and it is most certainly due to this variety that Millions of dollars have come the farmer's way.

Despite the fact there are many more new names than new varieties of Dent Corn today, the reputation of Reid's Yellow Dent has lost none of the lustre it won for itself years ago, neither has its popularity waned in the slightest degree.

It is of a light golden color, ears averaging about 10 inches long. The Cob carries a large amount of Corn, often shelling about 90%. The secret of its high shelling capacity is just this: "The ears are remarkably uniform with practically no lost space between the rows."

The Corn would be best described as Medium early, good solid stalk which makes excellent fodder, ears placed about $3\frac{1}{2}$ to 4 feet from the ground, (an excellent height for picking) the kernels being long and slender.

Our foundation stock was secured from a leading prize winning strain at the National Corn Exposition, being the best out of 112 Samples exhibited. **Prices: Per bu. f. o. b. Chicago. On Ear, \$3.50 per bushel; Shelled Corn, \$2.75.**

GARTONS KANE COUNTY YELLOW DENT

A variety of proven merit, bred and raised in Kane County, Ill., and vastly improved by us.

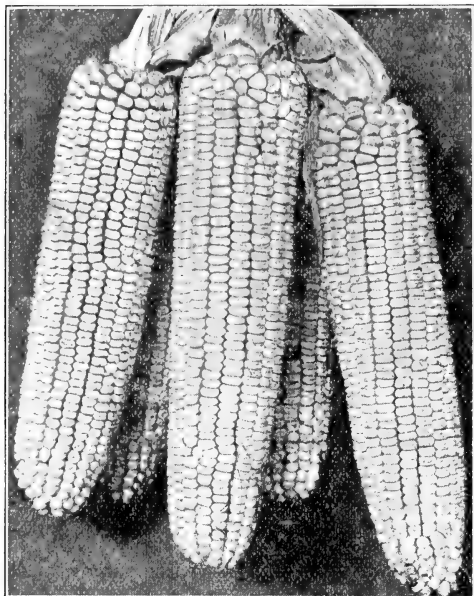
For quality of kernel and for heavy yield, we have not seen anything to beat it. With an Ear varying from 9 to 11 inches long, and with regularly dented kernels in a compact Ear, it is as near perfection as possible, and cannot help carrying off first premiums when exhibited in competition. Our own experience of this **newest variety** is that it out yielded any other variety in our neighborhood by ten to fifteen bushels per acre.

If this is once raised on any farm in Central or Northern Illinois, we feel safe in saying a great number of varieties now in use will be discarded in its favor. We can most cheerfully attach our personal O. K. to this valuable addition to Yellow Dent Corns. **Prices: Per bu. f. o. b. Chicago. On Ear, \$3.50; Shelled, \$2.75.**

Corn is King. If it is to be your King Crop, be sure and start right with dependable Seed. Gartons Selected Seed Corn from Pedigreed Strains cannot be beaten.

SILVER KING, WISCONSIN NO. 7

This Corn we believe was originated at Ft. Atkinson, Iowa, by A. J. Goddard. It was afterwards taken by Prof. R. A. Moore to Wisconsin and there bred by him until it reached a state of as near perfection as possible. It is, without doubt, the premier Corn of Wisconsin today.



Its value, however, is not restricted to Northern Iowa and Wisconsin alone but is a very useful and valuable Early Variety for Northern Illinois, where it has yielded most magnificent Crops during the past year.

When figuring up its record, we ourselves were astonished to find it had out-yielded other White Dent Varieties grown around here by as much as 24%.

In appearance, it is as near perfection as one can hope to get, with Ears measuring from 9 to 10½ inches long, beautifully compact with no space to speak of between the individual rows.

It is very early coming to maturity, which is a good point in its favor, whilst its ability to resist Cold Weather, makes it a very suitable variety to grow where one is afraid of Corn not getting out of the way in good time.

We strongly recommend this variety as being invaluable for Northern Iowa, Wisconsin, South Dakota, Northern Illinois, Ohio, Indiana, and the Southern Part of Minnesota. **Prices: Per bu. f. o. b. Chicago. On Ear, \$3.50; Shelled Corn, \$2.75.**

NINETY-DAY WHITE DENT

Probably the earliest variety of White Dent in Existence. It is naturally adapted for fodder purposes and must soon become a general favorite with Dairymen throughout the Northwest on account of its extreme robustness of constitution and earliness of growth.

The Ninety-day Dent possesses a Medium Long Ear with Deep Kernels of pure White, even rows and uniformly well filled.

We can unhesitatingly recommend to all desiring a Corn which is sure to ripen early enough to get out of the way of frosts, and at the same time secure a maximum yield of magnificent Corn. **Prices: Per bu. f. o. b. Chicago. On Ear, \$3.00; Shelled Corn, \$2.50.**

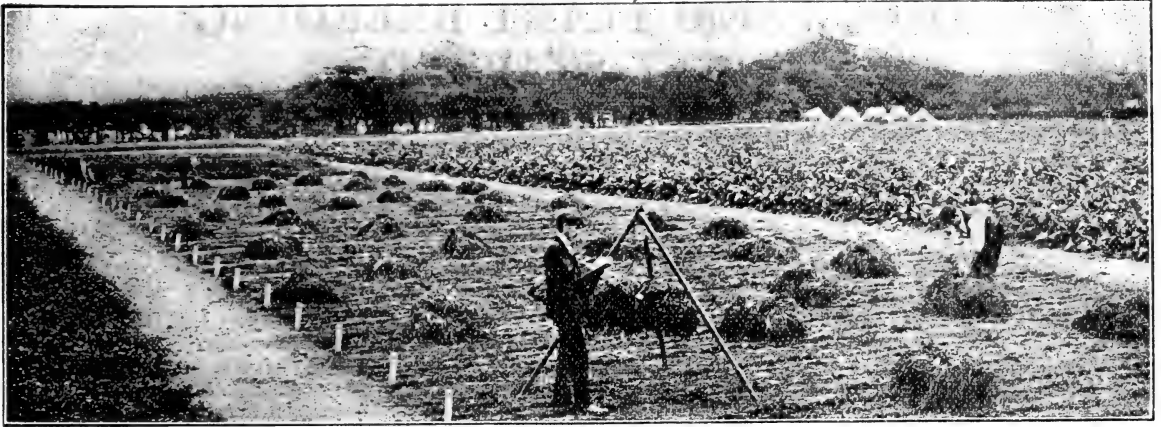
MAMMOTH YELLOW FODDER CORN

AN INVALUABLE CROP TO ALL DAIRYMEN—Fodder Corn is a very valuable crop on any farm, particularly in the Northwest where it occupies a place that otherwise could not be filled.

For Ensilage or Fodder, cured or green, Mammoth Yellow can be safely planted even in Northern States and is not equalled by any other Corn grown, being of leafy, luxuriant growth, with large ears, thus giving a great quantity of fodder per acre.

In addition to producing a vast amount of forage per acre (and we know ourselves of one Grower having raised 40 tons per acre this last Season) it can be used to advantage in Systems of Crop Rotation where summer fallowing is too expensive.

Another big feature in favor of Fodder Corn is that it is as good a Weed Killer as could be found on the farm, as the leaves shade the ground to such an extent that very few Weeds can develop. **Prices: Per bu. f. o. b. Chicago. Shelled, \$1.50.**



Harvesting and carefully weighing trial plots of Gartons strains of Alfalfa and Clover.
Showing one of the exacting tests to which our strains are subjected.

GARTONS HIGH GRADE ALFALFA (*Medicago sativa*)

Although Alfalfa has been known to Farmers in every age, even in prehistoric days, it is only within the past few years that its enormous value has come to be appreciated. It is without doubt the King of all Legumes, (the Clover Family), hardier than any other Clover and withstanding drouths, after a stand has once been gotten, in a manner altogether surprising, and yet there is no occasion for surprise when one examines the Roots of this valuable plant, which descend to enormous depths in the soil from whence it derives its nutriment.

It is the hardiest plant raised on the Farm and all things considered the most economical, because it is not subject to Winter Killing, and as a Soil Restorer its equal has not yet been found. Even during the past exceptionally dry Season, Alfalfa has given three and four cuttings and has sold readily at \$20 per ton. Taking an estimate that this Legume is capable of yielding 8 to 9 tons per acre (three cuttings) we leave it to the Reader to figure out the enormous profits that are obtainable for this Crop. Alfalfa is of strictly perennial habit and in the Corn Belt yields all the way from three to five tons per acre. As for Fodder for Live Stock in general, it cannot be excelled, as the constituents of this valuable Legume are so perfectly balanced as to render it a perfectly safe Feed for use at all times.

No pasture is complete without a portion of Alfalfa, as its Feeding Value is enormous and the amount of herbage it produces is surprising. In addition to this, it keeps the pasture in good shape all the time.

Much has been written and said on the way to prepare a Seed Bed, the greater part of which instead of assisting the Farmer has been a means of perplexing him. Speaking as practical Farmers, we would say right here prepare your Seed Bed in Good Shape, as if you meant to sow ordinary Red Clover. The best time for sowing is the fore-part of April or early Fall. We recommend drilling about 18 to 20 lbs. per acre, whether this should be sown with or without a nurse Crop is a matter of opinion. Our experience teaches us that for Spring sowing, a nurse crop, say about one bushel of Barley or one and one-half bushels of Oats is advisable. In the case of Fall Sowing we do not recommend any Nurse Crop. We might say if Oats are used as a Nurse Crop only such varieties as can be depended upon to stand and not lodge are to be used, otherwise your Alfalfa Plant is liable to be suffocated. For further information we would be glad to correspond with our Friends or recommend them Bulletins issued by the Department of Agriculture on this all Important Question.

The Seed we offer is Northern Grown, exceedingly Hardy and re-cleaned. The Seed being the best we have handled in years, and altogether we have the utmost Confidence in recommending the Seed to every Progressive Agriculturist.

Prices: By Mail per lb. 35c. 3 lbs. for \$1.00. By Freight or Express, 30 lbs. for \$6.50.
Write for Quotation on Large Quantities.

"Successful farmers—Men who are making money—recommend heavy seeding."

Replying to your favor of recent date will say that we intend to do more experimenting at our farm, Monon, Ind., along the line of permanent pastures as compared to pastures composed of Clover, Timothy and Bluegrass. However, we have 35 acres of alfalfa planted this summer which is doing fine, and if it is a success, which I firmly believe will be the case, our troubles are at an end. With alfalfa a success it will double our gross income and probably triple our net.

Wishing your Seed Company every success, I remain,

Yours truly,

Chas. Kelly, Pres't.

National Live Stock Commission Co.,
Union Stock Yards, Chicago.

HOW FARM PLANT BREEDING FIRST STARTED

The Great Work Commenced in 1880



1880

Cluster or spikelet (natural size) of ordinary oats, generally grown prior to the year 1880, when John Garton commenced his system of farm plant improvement. The maximum number of kernels in each cluster at that time being two only.

Several years prior to 1880, John Garton had carried on considerable work in the hybridization of potatoes, and the extremely successful results obtained caused him to consider whether similar improvement could not be obtained in grain by breeding from selected parents of proven merit. With this end in view he obtained copies of all the published books on botany and plant history. Each without exception, however, stated that the small grains and grasses of the farm bred or pollinated from any pollen-bearing plant of the same variety growing in close proximity, viz., that all were open to fertilize or crossbreed from other plants exactly as do corn, pumpkins, squash, etc.

Authorities Agree That Small Grains Are In-Breeders

Upon investigation of the breeding organs of wheat, oats, barley, etc., with high power lens or magnifying glass, it was clear that these plants did not breed together, but that each seed was produced by the males and females contained in the shell or chaffs, which were so closely sealed as to prevent the entrance of any pollen from other plants. Subsequent experiments by other reputable authorities have since confirmed this fact.

Nature's reason for this is perfectly clear, viz., to keep purity of type and strain, for if these grains could cross from plant to plant, and if, for example, pollen from a field of black oats was blowing over a field of white oats, the seed produced would be so stained as to render it useless for seed.

Nature's system of plant breeding is close or inbreeding, being from males and females most closely related, produced in fact in the same shell or chaff from the same parent seed and stalk, but, as previously stated, this is absolutely necessary to keep the strain or breed true, and prevent late, early and other types appearing in the same seed. Although the inbreeding is beneficial to the plant in keeping up its purity, it acts detrimentally upon the vigor and producing power, and it is only by crossing from unrelated or distantly related parent plants that vigor and producing power of cereals can be increased.

Since 1880, John Garton has devoted his entire time and energy to producing distinct new breeds of farm plants by this method.

THE OLD WAY OF PLANT IMPROVEMENT AND THE GARTON WAY

Prior to 1880, the methods of obtaining better quality seed grain were either by the grader, fanner, or by selection of the best plants from the crop. By the former methods, no actual improvement in the breed can be secured, as it is impossible to put a pedigree into a breed of grain by the use of a fanning mill, although better crops can be obtained by using only the best and plumpest grain for seed.

Selection, or the raising of stocks from the best individual plants, was tried for a number of years against producing new breeds by crossing, but the former system was eventually discontinued, as only slight improvement could be noticed in the vigor and productiveness of the selected stocks. Owing to the fact that the natural system of inbreeding had not been disturbed therefore the parentage or pedigree of the plant had not been altered, and the only benefit that could be noted was evidently due to the production and maintenance of a purer strain.



1892

Cluster or spikelet (natural size) of one of Garton's new breeds of oats, generally grown in 1890, showing that by the Garton system of Plant Improvement, the oat plant had been made to produce three kernels instead of two.

The Garton system of plant improvement is by two methods: Cross-Breeding and Regeneration. Cross Breeding denotes breeds which have been produced by crossing two or more distinct varieties, for example, the Black Tartar Oat with Swedish Select. Artificial cross-breeding produces great variation in the progeny, which exhibit almost every conceivable type, some early, some late, tall, short, weak in straw, strong, etc., etc., This is what would occur if grains crossed naturally in the field.

To fix any selected type from the cross-bred progeny, inbreeding is absolutely necessary to retain the purity of the new breed after it is fixed in character. Still, inbreeding is a disadvantage for the future welfare of the new breed, because of its tendency to cause new and abnormally productive types to run out, to lose in vigor and producing power in exactly the same way as animals deteriorate unless new blood is introduced periodically. To overcome this deterioration, Garton's system of Regeneration is applied to the new breed or strain from time to time, which means that new blood is infused into the original breed, by crossing from proven plants of the same variety or breed, the plants having for a considerable time been grown under different soil and climatic conditions.

HE BREEDS PLANTS JUST LIKE ANIMALS

John Garton then conceived the idea of breeding cereals just as the animal breeder has produced the modern pedigree animal, that is, by crossing and thereby blending the various types of cereals (each in their several species), which showed outstanding merit in any particular character. At great expense, every cultivated and uncultivated species of grains from the four quarters of the globe was secured and sown in plots on the Breeding Farm, Warrington, England, to be used as parents in John Garton's wonderful work of breeding.

As the work advanced, it became more apparent that the breeding of plants was running on parallel lines with the experiences of the stock breeders, and that by judicious crossing or breeding with a certain object in view it was possible to breed or build up almost any desired type of cereal, grass, clover or roots.

Remember we are the only Commercial Small Grain Breeders in the World.

DAIRY AND BEEF TYPES OF PLANTS



1904

Cluster or spikelet (natural size) of one of Garton's new breeds of oats, generally grown in 1900, showing the three kernels greatly increased in size over the new breed grown in 1890.

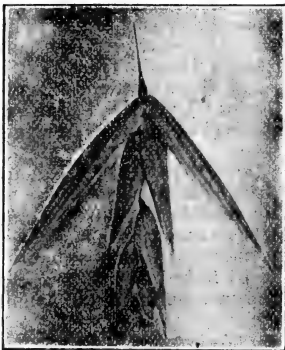
In re-producing itself, the cereal produces a seed containing the embryo germ or baby plant, along with sufficient food (starchy material, etc.) to feed the young plant until the roots get established. In other words, the food contained in the seed corresponds to the udder or milk of the cow, while the stem and leaves of the plant correspond to the beef or the body. Therefore John Garton commenced to follow the principles of successful stockbreeding.

As is well known, the original type of cow would be unprofitable for the dairyman or stock breeder of the present day, because the older types of cattle and all of their wild relatives produce only sufficient milk to feed the young until they are able to care for themselves, just as the original varieties of grains stored up only enough plant food to give the baby plant a start. Proceeding as the stock breeder had done, John Garton bred with the idea of originating types of grains that would store up more food or kernel than the young plant required to tide it over until its root system was sufficiently extensive to supply its wants and the chlorophyl or green coloring matter (the plant's stomach) of the leaves sufficiently developed to digest plant food or fertility taken from the soil.

LABORATORY AS WELL AS FIELD TESTS

The visible variation in the character of these new breeds being so apparent, it was only natural to suppose that the composition both of grain and straw would show a similar variation. Chemical analyses proved the surmise correct, now John Garton has added to his already extensive equipment a laboratory in which new breeds are analyzed as well as being tested in the trial plots. As an example of what breeding will do in changing the composition of the kernel and the differences in the feeding value, Garton's new breed of Black Oat Victor (described on page 6), which contains 47 per cent more oil than ordinary oats, and altogether 25% more food value than any other oat in Commerce.

HOW GRAIN IS REGENERATED



Cluster or spikelet (half natural size) of one of Garton's latest fixed results in oat breeding, showing seven kernels in each cluster. This New Breed will be introduced about the year 1920. This series of illustrations clearly demonstrates the rapid strides made in the improvement of farm plants at the Garton plant breeding farms.

After years of experimenting, the Garton Brothers discovered that this deterioration could be made good and the plant kept up to its maximum yielding properties by crossing together proven plants of the same variety which had for years been grown under different soil and climatic conditions. This is done by removing the male organs (anthers) from within the shells of twenty or thirty flowers or grain cases on one of the selected plants and when the females are at the receptive stage, ready for fertilization, they are fertilized or impregnated with pollen from another proven plant of the same variety which has been growing under different soil and climatic conditions. This infusion of new blood is termed regeneration, and, it will be noticed, is similar to the method adopted by our leading stockbreeders, who find, after using the same direct line of males for a number of years, that there is a danger of too close breeding, and consequently procure a fresh male of the same breed but of distant relationship with which to head their herd, and thus produce stronger stock by this infusion of new blood or regeneration.

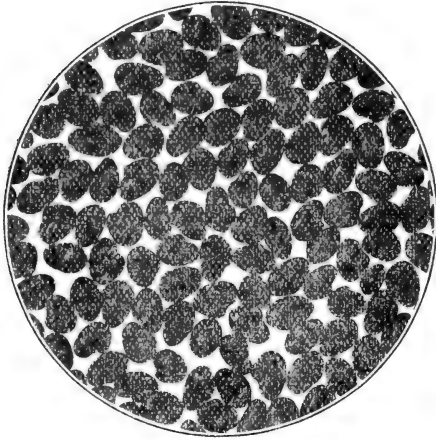
CONTINUAL IMPROVEMENT BY REGENERATION

At the famous Garton Plant Breeding Station this system of regeneration is each year applied to all the leading varieties of grain, twelve or more of each variety being thus treated. These regenerated seeds are each planted, grown, threshed and tested separately. It will thus be noticed that these regenerated strains are not merely selected plants from a seed plot or field crop where the breeding has not been in any way changed or disturbed, but are the result of scientific breeding, coupled with the most severe field and laboratory trials before being generally introduced.

We sell more Pedigreed Seed Grain than any other Seed House in the world. "What is the reason?" Because we employ trained specialists who devote their ENTIRE TIME to one thing ONLY, that is, Breeding, Perfecting and Testing out New and Regenerated Plants for the Farm. The satisfactory returns obtained by using our Pedigreed Seed are continually producing an increasing volume of business.

PHOTOGRAPHIC ILLUSTRATIONS

Showing Absolute Purity, Strong Germination and Vigorous Growth



GARTONS HIGH GRADE CLOVERS

The Value of Clover is indisputable, as a means of introducing Nitrogen to the soil, and its value as a fertilizer is readily apparent to the most casual observer. Take a mixture of Clover and Grasses sown side by side with Grasses sown alone, it will be easily seen that the Nitrogen from the Clover feeds the Grasses, and the Mixture quickly makes a complete Sod, whereas if grass alone was sown, the Sod takes much longer to make, therefore, it is only logical that as Clover feeds Grasses it will likewise provide Food for any other plant. Unfortunately, last Season was so dry as to preclude in many cases the possibility of a Stand. This has operated unfavorably in several ways. In the first place, there is an absence of Fertilizer in the land which will certainly affect next Season's Crop. Secondly, the farmers have lost a Crop. Thirdly, it is responsible for a shortage in Clover Seed this Season which has enhanced prices all the way round. As to enhanced prices, however, a Farmer cannot afford not to sow his usual quantity of Clover this Season, as by the failure of Young Clover Plants last year, in all probability it will have the effect of seeing even bigger prices for Clover next Season.

In upwards of thirty years of the writer's experience in the Clover Trade, there were never less quantities available, and seldom have we had higher prices. Our advice to our friends is to secure with all promptitude their supply and make sure of securing good quality of Clover of reliable Germination and Purity, as it is invariably the case when prices are high and Stocks low, there are large quantities of so-called Cheap and unreliable Seeds offered. Our present prices are as low as it is possible to sell reliable qualities for, and we wish to give, right here, a timely warning to Farmers who are tempted to buy so-called Cheap Seed. Place your order with reliable men, who can tell you where the Seed is grown and who are willing to sell Seeds in conformity with the Pure Seed Laws of the various states.

MEDIUM OR RED CLOVER (*Trifolium pratense*)—This is the common Red Clover most useful for hay purposes, and can be sown alone or included in Mixtures. We always aim to handle Northern Grown Seed. Our experience tells us this is the most satisfactory. We make a point of knowing under precisely what conditions the Clover has been raised in order that we may avoid buying any which includes noxious Weeds. In addition to this, our Seed Cleaning Machinery is unique and we believe same is absolutely the best and most perfect in America. This enables us to clean and grade Clovers which can always be relied upon by our Customers. This process, of course, costs money but we believe when a man is in the Market for Clovers **he should buy high grade Clovers** and not **Clovers mixed with weeds**.

Prices: By Mail per lb. 45c. 3 lbs. for \$1.20. By Freight or Express 30 lbs. for \$7.50.

Write for quotations on larger quantities.

GARTONS HIGH GRADE ALSIKE (*Trifolium hybridum*)—This perennial Clover is one of the hardest of all the Clover Family. Evidently its merits are becoming more widely known each succeeding year, as we find larger quantities are sold each succeeding year, especially in the Northwest. It will succeed in any soil and is the most successful Clover to resist extreme Climatic Conditions such as drouth and wet. It yields enormously and can be cut two or three times a season; it is a most valuable Clover for including with Mixtures of Grasses, owing to its dense growth at base, which forms a thick bottom, and is good alike for Pasture and Hay purposes. Alsike Clover often succeeds where Medium and Mammoth fail.

Prices: By mail 1 lb. 45c. 3 lbs. \$1.20. By Freight or Express 30 lbs. for \$7.00.

Write for quotation on larger quantities.

GARTONS HIGH GRADE WHITE CLOVER (*Trifolium repens*)—This is a most valuable Clover for including in Mixtures for Permanent Pastures and is also used in Lawn Grass Mixtures. Owing to its free Root Action it is a preventive of soils being washed by heavy rains. It is a very hardy Clover of somewhat creeping habit which soon accustoms itself to a variety of soils.

Prices: By mail 1 lb. 60c. 3 lbs. \$1.75. By Freight or Express one-half bu. or 30 lbs. \$10.50.

Write for quotation on larger quantities.

GARTONS IMPROVED PERENNIAL RYE GRASS

(*Lolium perenne* Gartoni)

A VALUABLE NEW GRASS FOR THE MIDDLE WEST.

RECLEANED SEED OF HIGH GERMINATION AND PURITY

Of the many Strains selected from *Lolium perenne*, this is undoubtedly the greatest. Obtained by Systematic Breeding and careful selection year after year on the Garton Plant Breeding Farms.

A marvelous change and improvement has been effected in this grass, over the foundation Stock, which was a Perennial Ryegrass known as Pacey's, named after the man who made the original Selection in Northleach Wiltshire, England.

After years of patient toil and skilful scientific breeding, we were rewarded by producing one of the most valuable grasses known to the Agricultural World. It is absolutely Superior in every way to the Old Fashioned Perennial Ryegrass, being way ahead as regards robustness of growth, yielding capacity and much more perennial in its habit.

Its superiority is marked in its perennial character. Ordinary Perennial Ryegrass will not last more than three years or four at the outside, whereas this Improved Breed has been growing on the same plot on our Breeding Farms for seven years and still looks pretty good. The best lot of ordinary Perennial Ryegrass grown side by side disappeared entirely in the fifth year; up to then however, in the weight test such as we undertake each year, we found that Improved Perennial Ryegrass had out-yielded the ordinary variety by no less than 18%.

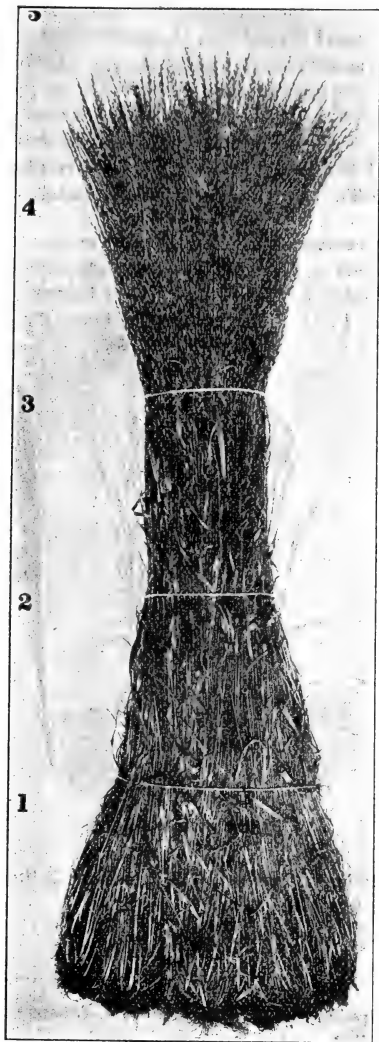
Buy your Seed from the Actual Raisers. All the Seed we offer has been raised from our own Stock Seed in Ayrshire, Scotland, and is good weighty Seed and of a splendid Color, absolutely free from quack grass or other noxious Weeds. In fact, it is quite impossible to secure better or purer Seed anywhere.

Improved Perennial Ryegrass is considered invaluable for permanent pastures. It produces an abundance of remarkably luxuriant foliage, tillers out close to the ground and soon forms a compact sward. It recovers very quickly after cutting; producing a beautiful aftermath which remains bright and green for the remainder of the Fall. It is an excellent grass for hay purposes if cut when in Blossom. Although, like most other Grasses, best Results are obtained in rather moist Situations, we have no hesitation in saying it is one of the finest drought-resisting grasses yet introduced. It was simply wonderful last Season to see how this grass continued to do business when practically all Natural Grasses had given out and were quite burnt up.

No hay or Pasture Grass Mixture is complete without this New Grass, we say New because it is quite different to and greatly in advance of the Ordinary Perennial Ryegrass hitherto offered in the Middle West.

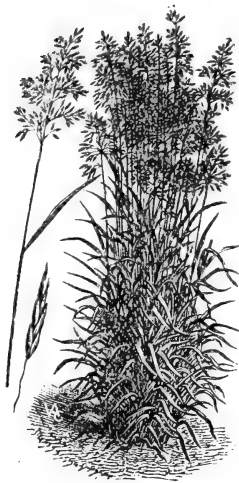
It is also excellent to be used in a mixture of Red Clover, and will give much better results than a Pasture Mixture of Red Clover and Timothy. If alone, 30 lbs. per acre should be sown. If mixed with Clover, we advise 10 lbs. of Red Clover and 15 lbs. of Improved Perennial Ryegrass.

Prices by Freight or Express. 5 lbs. 60c., 10 lbs. \$1.00, 50 lbs. \$4.50, 100 lbs. \$8.00.



Spare seeding is not economical, especially where the soil is poor. The best qualities are found to be the cheapest, and pure seeds of high germinating quality are in demand more than formerly; the extra cost per acre is nominal and the results are more profitable.

GARTONS HIGH GRADE NATURAL GRASSES



Awnless Brome Grass

RECLEANED SEED OF TESTED GERMINATION AND PURITY—Our Grass Seeds are all Tested for Germination and Purity and have been personally O. K'd by our Resident Botanist.

AWNLESS BROME GRASS (*Bromus inermis*)—A fine drouth resisting and remarkably hardy perennial grass which thrives in the dry regions of the West and Northwest. This Grass has been proven to survive Winters where the Temperature fell thirty-five degrees below zero. Its Root Action is vigorous and penetrated deeply into the ground and so easily withstands drouth. On poor, sandy land, where timothy cannot grow, it has given splendid results. As a permanent Pasture Grass for dry Sections, it is specially recommended, as it will start into growth weeks before other grasses, forming a tough close turf which remains green until late in the Fall. **Prices:** By mail 1 lb. 30c. 3 lbs. 75c. By Freight or Express 10 lbs. \$1.25. 50 lbs. \$5.50. Subject to market changes.

CANADA BLUE GRASS (*Poa compressa*)—A valuable grass for hard and dry soils. Flourishes on lands so poor and thin as to starve out all other grasses. It is specially valuable for Dairy and Sheep Pastures. Strangely enough, Cows Feeding on it Yield Richest Milk and finest Butter.

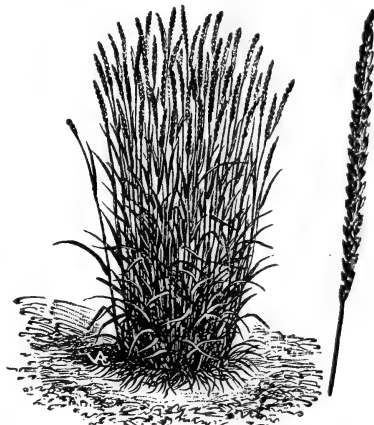
Its value is very apparent on Dry Rocky Knolls and it shrinks very little in drying and makes very heavy Hay in comparison with its Bulk. **Prices:** 22c per lb. \$2.75 per bu. of 14 lbs.

CRESTED DOGSTAIL (*Cynosurus cristatus*)—A very fine short grass worthy of a place in every Mixture for Permanent Pasture, especially for hard and dry soils and for hills for Sheep Pasture, as it is very hardy and is affected but very little by extreme Weather Conditions. It is claimed that sheep fed in such pastures where this Grass abounds are less subject to Foot Rot. It is very nutritious and relished by all Stock until the Seed Pods ripen, when the Grass becomes wiry. **Prices:** By mail 1 lb. 50c. 3 lbs. \$1.40. By Freight or Express 10 lbs. \$3.00.

ENGLISH BLUE GRASS (*Festuca pratensis*)—We have probably the best Stock of this Grass in the United States. It should find a place in every Mixture for Permanent Pasture, as it yields an abundant supply of Feed throughout the Season and altogether is an excellent Pasture Grass. A most successful resister for drouth and cold Winters.

Prices: By mail 1 lb. 55c. 3 lbs. \$1.50. By Freight or Express 10 lbs. \$3.00.

Write for quotation on larger quantities.



Crested Dogstail



English Blue Grass

We are prepared to make up Special Mixtures of Grasses for particular purposes, and will be glad to correspond with any one interested in Agriculture who wishes to have our advice on the subject of Pastures or Lawns.

PLANT BREEDING BRINGS WEALTH

Assistant Secretary M. W. Hays of the department of Agriculture, Washington, D. C., has said of the State of Minnesota: "An expenditure of less than \$20,000 annually in breeding wheat, oats, corn or flax is resulting, as shown in the increased yield, in addition to the crops of the State, of \$2,000,000 annually. The fact that millions of dollars are secured by a comparatively small expenditure, and that only the fringe of plant breeding has been touched, should lead us to follow up vigorously this method of increasing wealth of the State. It is like the State's iron mines—it is easy money."



Hard Fescue

HARD FESCUE (*Festuca duriuscula*). A most valuable and robust Grass; succeeds well in dry Situations. Of a somewhat dwarf habit it should be included in all Permanent Pasture Mixtures, as it comes early and stands drouth wonderfully well. Stock relish the grass, especially Sheep. It makes excellent herbage and is very succulent, while, from the fineness of its foliage, it is invaluable as a drouth resister as well as being most hardy in Winter, which makes it peculiarly well adapted for lawn purposes. **Prices:** By mail, 1 lb., 40 cents; 3 lbs., \$1.10. By Freight or Express, 10 lbs., \$2.10.

ITALIAN RYE-GRASS (*Lolium italicum*). A most productive and nutritious Feeding Grass grown especially for us in France. It is earlier than the ordinary Italian Ryegrass. It makes a succession of quick growths until late in the Fall, providing the land is in good shape and not too dry. The succulent character of this grass quickly responds to good and moist conditions on fertile land, but it thrives on almost any good soil. It is not recommended for Permanent Pastures, as it is only good for one or two years. The seed is of excellent Germination and free from all noxious Weeds. **Prices:** By mail, 1 lb., 25 cents; 3 lbs., 60 cents. By Freight or Express, 10 lbs., \$1.00; 50 lbs., \$4.00.

KENTUCKY BLUE GRASS (*Poa pratensis*). We have excellent Stocks of the genuine Kentucky Blue Grass, the merits of which, in conjunction with other Grasses, for Permanent Pasture are too well known for us to detail. Sufficient to say, our Stocks are of the very highest quality, perfectly re-cleaned, and have passed most exacting Tests as regards Purity and Germination by our own Botanist. **Prices:** By Mail, 1 lb., 55 cents; 3 lbs., \$1.50. By Freight or Express, 1 bu., of 14 lbs., \$4.00. Write for quotations on larger quantities.

ORCHARD GRASS (*Dactylis glomerata*). This is one of the most widely known of all Grasses. It is exceptionally valuable in Permanent Pasture Mixtures on account of its earliness and rapidity of growth. After it is first mown, it speedily produces a luxuriant second growth, being very quick to recover from a close clipping. All Stock relish it and feed upon it greedily. It grows in most all soils, but specially in moist and shady places. Being a deep rooted Grass, its roots descend to a great depth, from whence it draws its nutriment; consequently, it exhausts the soil much less than many other Grasses whose Roots are to be found nearer the surface. It blooms about the same time as Red Clover and makes a splendid mixture to cut, while in bloom, for

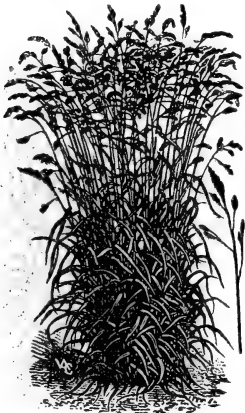
hay. We recommend, however, that it should first be grazed close before allowing it to grow for hay purposes. **Prices:** By mail, 1 lb., 40 cents; 3 lbs., \$1.10. By Freight or Express, 1 bu. of 14 lbs., \$3.25. Write for quotations on larger quantities.

PERENNIAL RYEGRASS (*Lolium perenne*). See page 17 for full Description.

If you contemplate laying down land for Pasture, or require advice as to better Hay Mixtures than Clover and Timothy, let us hear from you with full particulars, and we will give you the benefit of upwards of thirty-five years experience in such matters.



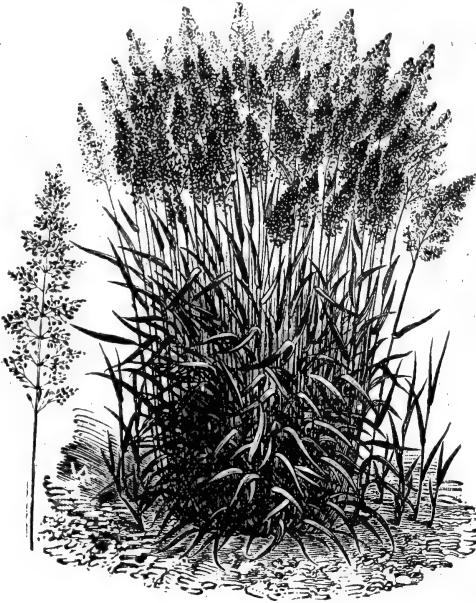
Kentucky Blue Grass



Orchard Grass



Italian Rye Grass



Red Top



Sheeps Fescue

RED TOP (*Agrostis vulgaris*). This is a most valuable grass for hay purposes or for mixing in Permanent Pasture. It succeeds almost anywhere, but it reaches a state of perfection in a moist, rich soil. If intended for pasturage, it should be fed close, as cattle do not relish this feed after it has grown to Seed.

Height from 2 to 2½ feet. Prices: By mail, 1 lb., 40 cents; 3 lbs., \$1.10. By Freight or Express, 10 lbs., \$2.25. Write for quotations on larger quantities.

SHEEPS FESCUE (*Festuca ovina*). This is a most excellent Grass for Sheep grazing and is greatly relished by them. It is an excellent grass for dry pastures, and for this purpose should be included in Mixtures intended for extreme rolling land. It is short and dense in growth and of an excellent nutritive quality. It has a very fine foliage and is of a very compact habit. **Prices:** By mail, 1 lb., 40 cents; 3 lbs., \$1.10. By Freight or Express, 10 lbs., \$2.00.

TIMOTHY (*Phleum pratense*). This is an excellent hay grass and probably the easiest of all to cultivate. Our Stock of this Seed has been harvested in excellent shape, and is re-cleaned, and is such as will pass the most exacting Tests as regards purity and germination. **Prices:** By mail, 1 lb., 35 cents; 3 lbs., 85 cents. By Freight or Express, 22½ lbs., \$4.50. Write for quotations on larger quantities.

TALL OAT GRASS (*Avena elatior*). A tall growing Perennial Grass producing a large bulk of nutritious Hay on stiff or bottom land. It commences to grow in the early Spring and is consequently a valuable grass to sow in pastures and should be included in all Mixtures of alternate husbandry or for Permanent Pastures. **Prices:** By mail, 1 lb., 40 cents; 3 lbs., \$1.10. By Freight or Express, per bu. of 14 lbs., \$3.75.

WOOD MEADOW GRASS (*Poa nemoralis*). Sometimes called Hudson Bay Meadow Grass, one of the hardiest and most valuable of Dwarf Growing Grasses, invaluable for Pastures and in the formation of Lawns and Park Grasses. It thrives well under trees and is the best grass for sowing in Shady places. **Prices:** By mail, 1 lb., 75 cents; 3 lbs., \$2.00. By Freight or Express, per bushel of 14 lbs., \$9.00.

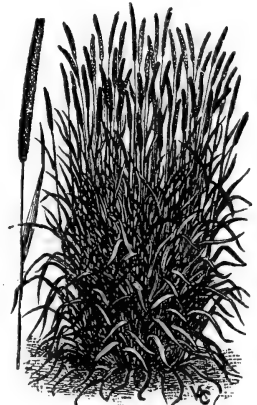
DWARF ENGLISH GRASS. This grass is considerably in advance of Perennial Rye-grass, both as regards feeding value and its capacity to yield. It should find a place in every Mixture for Permanent Pasture as it produces an immense amount of herbage. Its foliage tillering close from the ground quickly forms a dense growth at the base, which soon makes a firm and compact turf. It is an excellent variety for hay purposes if cut at the time of flowering in June. After cutting, its growth is very vigorous and rapid, and it retains a bright green appearance right through the Fall. We hold the entire Stock of this improved Seed, and our prices are as follows: By mail, 1 lb., 30 cents; 3 lbs., 80 cents. By Freight or Express, 10 lbs., \$1.75; 1 bu. of 20 lbs., \$3.00; 50 lbs., \$7.00.

EXPRESS GRASS. This Grass is offered by us for the Second Season with the greatest possible confidence, knowing full well that it is sure to make a name for itself, as its merits become known. It provides an abundance of nutritious food in the early Spring, and in a favorable Season will furnish

several cuts. It is on the order of Italian Rye grass but has been carefully selected and improved in competition Trials. On precisely similar soils, it has produced a much greater weight per acre than the Italian variety, while its succulent character provides 15% more Feeding Value. We do not claim that it is perennial but we classify it as a biennial. It is, therefore, not recommended for inclusion in Mixtures for Permanent Pastures, but where Grass is to be laid down for one to two years only, no mixture is complete without it, whereas for patching purposes or for a Catch Crop it has positively no equal. If sown alone, we recommend 25 to 30 lbs. per acre. **Prices:** By mail, 1 lb., 30 cents; 3 lbs., 75 cents. By Freight or Express, 10 lbs., \$1.70; 1 bu. of 20 lbs., \$2.75; 50 lbs., \$6.50.



Dwarf English Grass



Timothy

GARTONS MIXTURE of GRASSES and CLOVERS for PERMANENT PASTURES

American Agriculture has been called upon from time to time to solve various problems of changing conditions, which always have to be reckoned with as Countries become settled. For proof of this, one has only to read the History of all great Agricultural Nations.

Today the Farmers of the Middle West are called upon to deal with the serious question as to how and where Steers are to be gotten for Feeding Purposes. Hitherto, there has been no question of supplies obtainable from the West, which were raised on extensive Ranches where value of Land seldom came into the reckoning, and were produced at less than half the cost; they could be raised by Farmers in the Corn Belt.

At the present time a very different set of conditions prevails. The West is now rapidly becoming depleted of its young and Prairie fed Stock and the Ranches have or are now steadily being broken up and Homesteaded for General Farming purposes by Settlers, numbers of whom are moving out to the West each succeeding year.

The question naturally arises, from what Source is the Feeder to draw his supplies for future. This question has not yet been satisfactorily answered, but it seems clear to us, that one means of meeting the Crisis is for the Farmer to breed his own Steers.

This certainly gives rise to altogether different conditions in Farming. The General belief throughout the Middle West, which is shared by all leading Agricultural Writers, is that Beef will never be cheaper than it is today, and with altered Conditions must necessarily increase in Market Value.

To Grow Beef successfully, advantage must be taken of the best Pasturage that can be obtained. It is agreed that the Silo, although an excellent standby for periods of Drouth and for Winter Feeding, cannot be expected to give such Feed as Breeding Cattle require. Again, the Dairy Industry in this Country, whose population is increasing by Millions every year, must also be attended to, and here again is a branch of Farming in which good pastures are essential.

This all important question has received from us the careful attention it so richly deserves, and, after exhaustive Experiments and Trials, we offer a Mixture of the best and most nutritive Grasses and Clovers particularly suited to meet the present Situation.

It is to the best Interests of every Farmer that he should try out this Mixture, not necessarily in a big way, but certainly in a five or ten acre plat, as such a trial would do more to convince the practical man than Volumes of Books which could be written on this important Subject.

The Garton Mixture is composed of exact proportions of grasses and Clovers, suitable for various classes of land, producing most luxuriant pastures and wonderful hay Crops. We recommend that 35 lbs. per acre should be sown to get the best results. These Mixtures are made up from the prescriptions of an Expert familiar with the varied conditions existing in the Middle West.

A description of the soil and locality should be given when ordering and the purpose for which the Mixture is intended, in order that the Farmer's object may be fully realized. None but Seeds of the highest quality of Purity and Germination are included. Farmers, therefore, may have every confidence in entrusting their orders to our care with the assurance that same will have the attention of Seed Experts.

GARTONS PERMANENT PASTURE MIXTURE FOR ROLLING LAND AND GARTONS PERMANENT PASTURE MIXTURE FOR BOTTOM LAND

The quantity of seed that should be sown per acre depends entirely on the location and nature of the soil. There is a wide difference of opinion on this subject, and the actual weight necessary must therefore be determined by some one conversant with the local situation.

Prices: 25 lbs., \$5.00; 50 lbs., \$9.50; 100 lbs., \$18.00.

THE GARTON LAWN GRASS MIXTURE

Many years of experience have taught us that comparatively few grasses are really serviceable in a lawn mixture. It is, therefore, useless to buy so-called cheap mixtures, and being disappointed with results, the lawn finally having to be resown with varying results.

The natural grasses used by us are all quick growing varieties, and produce a beautiful velvety lawn. From the tests we have made, we are confident that perfect satisfaction will be obtained if seed is sown in the Spring as early as the land can be got into shape.

In preparing your soil for seeding, secure some well rotted stable manure and spread over fairly thick, then dig or plough to a depth of 6 to 8 inches, thoroughly mixing the manure, and pulverize the soil very fine. Sow and rake the seed, rolling with a light roller afterwards, when possible.

Sow at the rate of one pound to each 50 square yards, or for a large area at the rate of 100 lbs. per acre.

PRICES: By Mail, 1 lb., 50 cents; 3 lbs., \$1.30. By Freight or Express, 10 lbs., \$2.50.

Write for quotations on larger quantities.

GARTONS IDEAL GRASS MIXTURE FOR GOLF COURSES

This mixture is made up from the prescription of a Golfer of many years standing who thoroughly understands what is required of a Golf Course, and with a practical knowledge of grasses.

Committees of Golf Clubs, therefore, will be perfectly safe in leaving their orders to us with a description of the soil and sub-soils, as the mixture may have to be varied a little to meet the peculiar local requirements. All coarse-growing grasses have been rigidly excluded, and although the mixture will produce immediate results, they will, none the less, be lasting. A very even surface is obtained and a good lie is always to be depended upon, as no tufts will be present.

By Freight or Express, 10 lbs., \$2.75; 25 lbs., \$5.50; 50 lbs., \$10.00; 100 lbs., \$19.00.

I bought three different lots of lawn grass mixtures last Spring for my new home grounds, and yours was by far the best of the lot, and has given me an excellent showing of beautiful, dwarf growing grass, which has already made a solid bottom. There is no question but what your lawn grass mixtures are far ahead of the average mixtures and are in exactly the same class as your Regenerated Swedish Select Oats, which are far ahead of the ordinary oats.

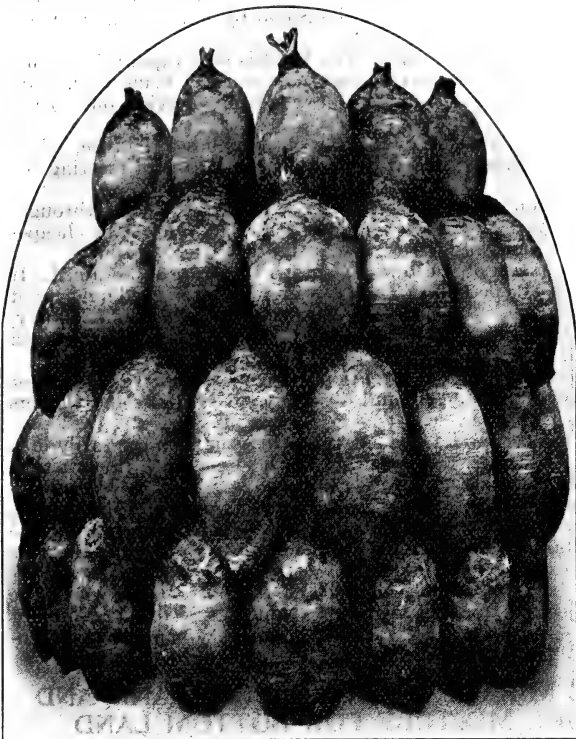
Waterloo, Iowa.

Yours very truly,

Wm. Galloway, Pres.,

GARTONS NEW BREEDS OF MANGELS

We have certainly scored one huge success in introducing our New Breeds of Mangels, which are far superior in feed value and yielding capacity to all others at present in commerce.



Garton's New Red Intermediate Mangel.

Farmers conservative to commence with are now assured that it certainly pays and pays big to raise a few acres of Mangels, for the breeding of Cows and Ewes. We have received sufficient unsolicited testimonials to fill a fair sized volume, from men who have proved beyond a doubt that Mangels can be grown at a big profit, even in a drouth stricken year through, which we have passed, whereas the medicinal as well as feeding qualities of the Crop cannot be over-estimated. Considering the fact that it is an easy matter to raise around about 40 tons per acre, and that the whole root is perfectly digestible, there being no waste as in the case of Corn Stalks or other coarse fodder, there is no food so economical. Cows fed on Mangels during the winter give more and better milk. Sheep also are healthier and Ewes with Lambs give more milk and therefore raise better lambs than if fed on dry feed.

CULTURE.—Any soil that will raise good Crops of potatoes will do for Mangels. A fine firm Seed Bed is of great importance. The land should be rolled well before sowing. Drill 6 to 8 pounds to the acre in rows 18 to 26 inches apart. In Dry Sections, it is advisable to drill on the flat. Where there is a good rainfall, however, the Ridge System gives the best results. A grain drill may be used but a hand drill is more satisfactory. Plants should be thinned out one foot apart when a few inches high.

GARTONS NEW RED INTERMEDIATE MANGEL.—This New Breed of large Red Intermediate Mangel has no equal, being absolutely the last word in Feed Value. It excels all others for Cropping, Richness of

flesh, High Feeding Value, and long keeping qualities. Unlike the Old Long Red Variety, it is easily pulled. In fact, it is quite possible to pull four Bulbs of this New Breed while pulling one of the Old fashioned variety, as the trunk of the New Red Intermediate Mangel grows practically all out of the ground and has no side Fangs whatever. Easily the richest in Sugar and Albuminoids and lower in useless fibre than any other Mangel in existence, there being absolutely no waste, as the Bulbs can be fed without further cleaning. Specially recommended for those who practise dairying either on a small or large Scale and positively invaluable for Sheep and Cattle Breeders. **Prices:**—By mail $\frac{1}{2}$ lb. 40c; 1 lb. 70c; 3 lbs. \$1.75. By Freight or Express 10 lbs. at 50c per lb.

GARTONS NEW GOLDEN TANKARD MANGEL.—This is a good Pedigree Mangel. The Bulbs are very symmetrical in shape, with deep orange skin and yellow flesh and are very high in saccharine matter. No dairy farmer can afford to be without it when once its merits are known. **Prices:**—By mail $\frac{1}{2}$ lb. 35c; 1 lb. 65c; 3 lbs. \$1.65. By Freight or Express 10 lbs. 45c per lb.

GARTONS NEW YELLOW GLOBE MANGEL.—We have no hesitation in saying that this New Yellow Globe Mangel is as near perfection in a Globe Mangel as it is possible to get. The Bulbs grow to an immense size and are remarkably uniform in shape with shoulders free from that coarseness which so often disfigures and reduces the feeding value of many Mangels. The Flesh is rich in fats, sugars and bone-making constituents, and altogether is sure to give satisfaction. **Prices:**—By mail $\frac{1}{2}$ lb. 30c; 1 lb. 55c; 3 lbs. \$1.50. By Freight or Express 10 lbs. at 40c per lb.

Stonington, Ill.

In order to get some Cool Feed for my stock, I put in a field of your New Mangel (Red Intermediate). At first they did not grow well, owing to the drouth which struck our section, but to my surprise, although there did not appear to be more than one-half a stand, owing to this drouth, I was amazed to find that I had grown upwards of 30 tons per acre, all good shapely Bulbs, which can be fed to my stock without trimming.

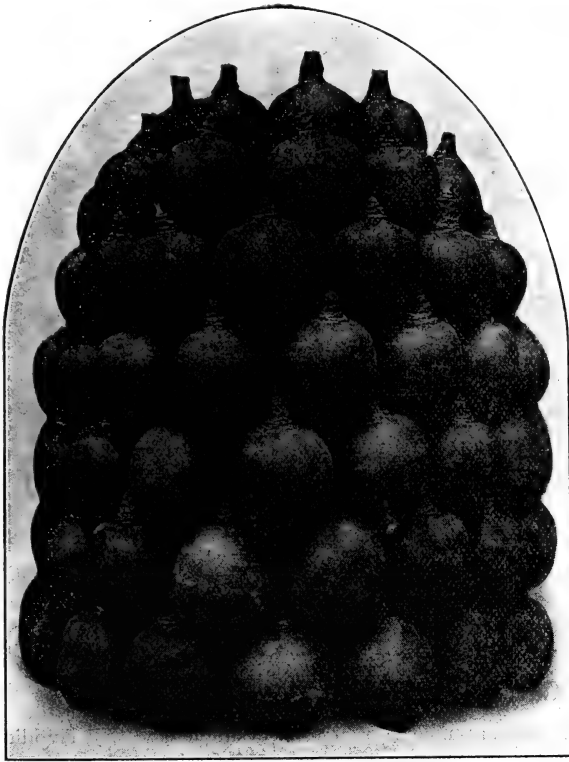
You can depend on me growing more in the future, as I certainly appreciate that it is not only a Cheap Crop but it is something which every farmer ought to have for Stock Feeding instead of so much dry Corn Feed.

Please double my order for what I had last season and ship same last of April.

R. J. Stone.

(President of Oxford Sheep Breeders' Association.)

GARTONS NEW PEDIGREED RUTABAGAS



Garton's New Superlative Rutabaga.

A grand Stock Feed for Fall and Winter and as its merits become known, its cultivation must increase rapidly. There are numerous varieties of Rutabagas on the Market, but we have devoted considerable time to the improvement and breeding of a few of the best. It must not be overlooked that all Rutabagas have not the same food value, nor do all Rutabagas give the same return per acre. The New Breeds named below have been raised by ourselves and we know there are no better varieties in the World. From trials which we have conducted in this country, we are convinced that every Farmer who possesses Stock must sooner or later raise a few acres of both Rutabagas and Mangels. Cultural Directions of the sowing of Rutabagas same as Mangel Wurzels described on page 22. Drill three lbs. per acre.

GARTONS NEW RUTABAGA "SUPERLATIVE."—An absolutely New Rutabaga, Bred and Raised by the Gartons. Analytical Examination reveals the fact that it is the highest feeding Rutabaga ever introduced, while it is certainly the heaviest Cropper. Upwards of 35 tons per acre have been raised during the past dry Season. It is also invaluable from a Truck Gardening Standpoint. Its fine quality when boiled for table use, coupled with its beautiful purplish skin and single tap root make it a prime favorite in the market. **Prices: By mail 1 lb. 65c. By Freight or Express 50c per lb.**

GARTONS NEW RUTABAGA "PERFECT".—A new introduction of all round general excellence. Its heavy yielding properties, combined with its superior Feeding Qualities, go to make it what its name implies, a Perfect Rutabaga. A beautiful and shapely Bulb with a bronzey greenish skin, and a single tap root with absolutely no side fangs. **Prices: By mail 60c. per lb. By Freight or Express 45c per lb.**

GARTONS NEW AND IMPROVED BREEDS OF TURNIPS

We recommend the following varieties as the best varieties in the World. Turnips come in for feeding Stock earlier than Rutabagas. The latter, of course, however, possess better keeping qualities than the common Turnip.

GARTONS HARDY GREEN GLOBE TURNIP.—A distinct New Turnip, bred by ourselves and is a large growing bulb with green skin and white flesh. Comes to maturity very quickly and provides valuable feed for Stock in the early Fall. **Prices: By mail ¼ lb. 20c; 1 lb. 50c. By Freight or Express 40c per lb.**

GARTONS IMPROVED MAMMOTH PURPLE TOP TURNIP. This is an improved Breed which will make its worth felt among Stock Feeders for Fall use. It has a deep purple Top with white flesh. **By mail, ¼ lb., 20c; 1 lb., 50c. By Freight or Express, 40c per lb.**

GARTONS CENTENARY TURNIP. Is an exceptionally large Turnip with green wrinkled skin resembling a Melon. It is of exceptional Feeding value and bound to give the best results. **Prices: By Mail, ¼ lb., 20c; 1 lb., 50c. By Freight or Express, 40c per lb.**

The best qualities are found to be the cheapest, and pure seeds of high germinating quality are in demand more than formerly; the extra cost per acre is nominal and the results are more satisfactory.

We Are Headquarters For Genuine Dwarf Essex Rape.



A field crop of Gartons Improved Thousand Headed Kale.

GARTONS IMPROVED DWARF ESSEX RAPE

Valuable Feed For Cattle, Sheep and Hogs.

On this vast Continent, it is pitiable to think there are millions of acres of desirable land that lay idle every year, (or at all events lay idle for a greater part of the year, say after the small Grains are harvested,) which might very profitably be employed in raising a Crop of one of the best Feeds in the greatest abundance man could possibly imagine.

Under ordinary favorable conditions Rape is ready for pasturing Sheep or Hogs in about six weeks from date of sowing, and on the average an acre will carry about fourteen sheep six to eight weeks.

There are several varieties of Rape, but the one of outstanding merit is Dwarf Essex, raised in Essex County, England. Pretty nearly all the Rape that is offered in this Country is called Essex Rape. A greater part of this, however, is shipped direct from Germany. **Don't be misled**, however; obtain your supplies direct from us, as all the Seed we offer was raised on our own farms in Essex, England. It costs you no more, and is a whole lot more satisfactory and profitable to you.

As a catch crop after small grain or just before Corn is laid by, it is the greatest Feed that man could provide for; in fact, will yield more green Feed for pasturing purposes than could be raised from any other crop at anything approaching the same cost per acre.

Its fattening properties are stated in reliable quarters to be twice as good as Clover. Anyway, we know from our own experience that it has saved us hundreds of dollars in Feed Bills. The past summer was especially hard on our Pastures here and were it not for the fact that we had 80 acres in Rape which flourished in spite of the continued hot weather, we certainly could not have carried the thousands of Sheep we did. These, however, today are looking in the very pink of Condition. When Sheep are on Rape they should always have access to Salt. Water, however, is not necessary.

Resolve now to get in with Genuine Dwarf Essex Rape, as it is the right thing to do. Sow liberal quantities along with other grain; it will surprise you how clean it will keep your land, and what a quantity of Green feed you have after the grain is harvested, which is the very time you want it.

Sow 6 lbs. per acre, if broadcasted, or 4 lbs. if drilled. **Prices: By mail, 1 lb., 25c; 3 lbs., 60c. By Freight or Express, 10 lbs., 85c; 50 lbs., \$3.50. 100 lbs., \$6.00.**

Sugar Grove, Ill.
Replying to your letter of October 30th, would say I am mighty well pleased with the Dwarf Essex Rape you supplied me with last Spring. It was much better than a small quantity I got from another Seed House to make out my field with.

My Sheep and Hogs did wonderfully well on this feed, so I have concluded to sow pretty nearly a hundred acres of Rape next season.

You may book my order for 500 pounds to be delivered end of April.

Yours truly,

W. G. Cavan.

GARTONS SELECTED MILLETS

Millets, though quite largely grown in some sections, deserve greater general recognition on account of their adaptability to soils, localities and their many uses. Their chief importance is as dry weather, summer catch Crops, supplementing other early summer maturing Crops, and also to succeed crops that fail, such as corn, etc. Millets are also one of the best Crops for planting on newly broken land—useful in certain kinds of rotation, excellent for soiling. May also be grown in place of summer fallow without detriment to succeeding Crops. Splendid for land foul with weeds, restoring it to good condition. May be profitably used in Silage combinations; may be pastured—in fact, is of special value for this purpose where grass pastures are exhausted—burned out. Millets, if cut in blossom, before they get too woody, make excellent hay—and therefore are of great value in Season of Short hay Crops. Millet Crops are less subject to the attacks of insects and fungus diseases than any other cereal.

HUNGARIAN—Is the quickest of Catch Crops for hay, and, as it may be sown any time during the summer months up to the middle of August, it is invaluable for overcoming a shortage of the regular hay Crop. It is a fair drouth resistant and yet is particularly good on bottom land where other Crops fail owing to exceptional moisture. Many Farmers now occupy their land with other crops, and for their hay depend entirely upon Hungarian Grass, which they can sow after other Crops have been harvested. Sow 1 bushel per acre. **Prices: Subject to market fluctuation. Present price per bushel of 50 lbs., \$1.60.**

GERMAN OR GOLDEN—This variety is considerably larger than Hungarian and yields a much heavier Crop, but is later and not so quick growing, consequently cannot be sown much after the second week of July in this latitude. To maintain the heavy chopping character, Seed of this variety needs to be specially cultivated. Our Seed is specially grown and selected, and will produce nearly double the crop of Seed not so grown and which may be offered at a cheaper price. Sow 1 bushel per acre. **Prices and Samples on application. Prices subject to market fluctuation. Present price per bu. of 50 lbs., \$1.60.**

KAFFIR CORN

Kaffir Corn is a valuable forage plant, growing 4½ to 6 feet high; it is stocky, erect and produces wide, luxuriant, succulent foliage, making excellent fodder, either green or dried, and is highly relished by all kinds of Stock. Each Stalk produces from 2 to 4 heads of grain. These heads are long and narrow. Kaffir Corn has the quality common to all Sorghums, of resisting drouths, and in this fact is to be found its peculiar value, especially in Southern Sections. It has yielded paying Crops of Grain and Forage, even in Seasons so dry that Corn failed entirely. **Prices subject to market fluctuations. Present Price per Peck, 40c. Per bu. of 56 lbs., \$1.50.**

GARTONS GIANT SPRING RYE

Is a valuable Crop for either soiling, green fodder, straw or grain; often used to sow along with Vetches. Absolutely the finest thing to sow on poor, worn-out or sandy land; produces astonishingly good Crops. It is also a valuable catch Crop to sow where Fall sown grain has winter killed.

Prices and Samples on application.

GARTONS SPRING VETCH (*Vicia sativa*)

Spring Vetch, sometimes known as Tares, is always a profitable soiling Crop, and is relished by all kinds of Stock. Spring Vetches will give a large amount of the finest feed in the Summer, and if sown at intervals from April to August will provide a succession of Green Feed right up to the end of the Fall. Sow about a bushel of Vetch and a like amount of Rye, Barley or Oats mixed, per acre. **Present Prices, 12c per lb. or \$3.50 per bu. of 50 lbs.**

SAND OR WINTER VETCH (*Vicia villosa*)

A valuable leguminous plant and a great nitrogen gathering plant and land Restorer. Succeeds on very dry, poor soils but of course is more vigorous on better land. Exceedingly nutritious; more so than even Clover. Is eaten with relish by all Stocks, to which it may be fed with perfect safety. Sow at the rate of 1 bushel (60 lbs.) per acre, together with ½ bushel of Rye or Barley. **Price per bu. of 60 lbs., \$7.25; per 100 lbs., \$11.50.**

MISCELLANEOUS FIELD SEEDS

Write us for samples and prices before placing your orders elsewhere. All Stocks are carefully selected and prices most moderate.

GARTONS IMPROVED CABBAGES

A Crop of Cabbages is valuable to Stock Breeders for both Sheep and Cattle. For Spring Planting, Seed should be sown in March and transplanted in May or June. Drill four to six lbs. per acre and when sown in Seed Bed, one pound of Seed will supply sufficient plants for one acre.

EARLIEST OF ALL—The earliest Field Cabbage in Cultivation and unequalled for a first Crop. Although the heads attain a larger size than is usual in an Early variety, yet the quality is excellent. From Seed sown in April, profitable crops may be had in the Early Fall. **Prices per lb., \$1.75.**

DRUMHEAD—The best late variety of Cabbages on the Market. The heads grow to an immense size and still retain their solidity. Without question the largest and best selected type of Drumhead on the Market. **Price, per lb., \$1.50.**

GARTONS NEW AND IMPROVED BREEDS OF CARROTS

As the science of that branch of farming appertaining to Stock Feeding advances, there is no doubt that more carrots will be grown, as of all Roots there is none more adapted to horses, particularly colts—it is also excellent feed for Sheep and other Stock.

A Sandy Loam, well manured the previous year, suits carrots best, but any good land if deeply worked will produce satisfactory Crops.

Sow in drills 18 to 24 inches apart at the rate of three lbs. to the acre. Cover the Seed about one-half inch deep, making sure the soil is firmly pressed over the Seed. Care must be taken that the young plants are not smothered by weeds.

GARTONS RED INTERMEDIATE CARROT—Medium length, and well adapted for shallow soils; an enormous yielder; is in good demand for Market Work. We have received numerous congratulatory letters this Fall, concerning the merits of this Improved Carrot, accompanied in many cases by a repeat order, which is the best evidence of the satisfaction of our Customers. **By mail, ¼ lb., 30c; ½ lb., 40c; 1 lb., 70c.**

GARTONS IMPROVED LONG RED CARROT—An extra fine selected Stock, which has given fine results on our own Farm last season. The carrots are exceptionally large and weighty and are relished by all live Stock, especially Horses. **By mail, ¼ lb., 30c; ½ lb., 40c; 1 lb., 70c.**

GARTONS IMPROVED YELLOW CARROT—A large growing, very handsome Yellow carrot of excellent quality, strongly recommended to all Stock Feeders. **By mail, ¼ lb., 25c; ½ lb., 40c; 1 lb., 65c**

GARTONS IMPROVED THOUSAND HEADED KALE

This valuable forage plant still maintains its popularity and to Flockmasters in particular it has become almost indispensable. Its adaptation to almost every class of land, together with its simplicity of Culture and enormous cropping properties, places it in the front rank of our forage plants. Owing to its hardiness of constitution it withstands the most severe frosts and by successive sowings during the Spring and Fall months it will maintain a continuous supply of green food all the year round. The method most recommended is to sow the seed broadcast at the rate of about 10 lbs. per statute acre, although some prefer to drill the seed at the rate of 4 to 6 lbs. per acre. **By mail, ¼ lb., 25c; ½ lb., 35c; 1 lb., 60c. By Freight or Express, 10 lbs., 50c per lb.**

GARTONS IMPROVED KOHL RABI

Kohl Rabi is a vegetable something akin to the Cabbage and Turnip, which combines the flavor of both. The edible portion resembles a turnip-shaped bulb. It is capable of withstanding Drouth where Turnips fail and is excellent Sheep Feed. It has shown its worth as a drouth resister this past Season. We have raised marvelous Yields of this excellent Feed on our own Farms in Illinois. It is particularly suitable for hot Seasons and dry Climates. All kinds of Stock eat the Crop greedily and thrive on it. Kohl Rabi is a first-rate plant to mend other Crops and on most Farms it would pay to sow every Season a large bed to provide plants for patching vacant places among Rutabagas and Mangels. Drill 4 lbs. to the acre in rows about 2 feet apart. As soon as the plants are big enough they should be thinned to a foot apart in the rows. **By mail, ¼ lb., 35c; ½ lb., 50c; 1 lb., \$1.00; 3 lbs., \$2.50.**

SAVE MONEY AND BUY YOUR SUPPLIES FROM US

Deduct 10% From Your Remittance

There is a reason why we are able to sell at lower prices than others. We have a Contract with the actual Manufacturers to take large shipments in a specified time. You get the benefit, We share our profits with you. It costs us very little to handle these supplies in addition to our general Seed Line, and we believe in **small profits and big returns.** Include your Order for supplies and we will ship same along with your order for our Pedigreed Seed Oats and High Grade Field Seeds.

A splendid offer for you. On all supplies named in pages 27 and 28 you may deduct 10% from your remittance. Select goods to the value of \$10.00 and remit \$9.00 only. Or, if you order supplies to the value of \$5.00 you need only remit \$4.50.

BITTER LICK MEDICATED Salt Brick



THE MEDICATED SALT AND STOCK FOOD COMBINED

FOR HORSES, CATTLE AND SHEEP—Bitter Lick is a pure, highly concentrated Medicinal Salt Brick of marvelous strength. Infallible in curative effect and absolutely free from any crude substance. Perfect and complete in its composition. Regularly used by thousands of Stockmen. Fed to millions of animals every year. Bitter Lick takes the place of, and is much cheaper than Stock Foods, Worm Powders, etc. Prices: Per dozen, \$2.50; per case, 50 bricks (100 lbs.) \$9.00. Salt Brick Holders, 20c each or \$2.00 per dozen.

THE IDEAL EAR BUTTON

ABSOLUTELY THE BEST ON THE MARKET—Medium size—suits all animals. Clinches tight and cannot come out. Double tube gives double strength. Name and address on top, as shown, and number on bottom. Pure aluminum, hardened. Prices:

25.....	\$ 1.15
50.....	1.75
100.....	3.25
500.....	15.00
1,000.....	27.00
Punch and Pliers.....	1.00

Postage extra, 10 cents per 100 buttons. Postage extra, 10 cents on Punch and Pliers.

Name and address not exceeding 19 letters can be put on top of cap. If exceeding 19 letters part can be put on bottom cap with number. Name, address and number in no case should exceed 30 letters.

METAL EAR LABELS FOR SHEEP, CATTLE AND HOGS

USED BY ALL LIVE STOCK RECORD ASSOCIATIONS—Your name on one side and numbered from one upward on reverse side, or any numbers desired. They are very light and will not tear out. If any animals stray from home, or become mixed with a neighbor's flock or herd, they can be easily found and identified. With these numbers a record can be kept of the age or number of registry, if pure-bred. They are attached to the ears with an oval spring punch. Not more than eleven large size letters can be put on Sheep and Hog size labels, —fifteen on Cattle and Extra Cattle sizes. On Cattle size only, name and address can be put on, in small type, if not exceeding twenty-two letters, Prices of Labels:

	Sheep and Hog	Cattle	Extra Cattle
100 with name and numbers.....	\$1.50	\$2.00	\$2.50
50 with name and numbers.....	1.00	1.25	1.50
25 with name and numbers.....	.65	.75	1.00
100 with name or number only.....	1.00	1.50	1.75
50 with name or number only.....	.75	1.00	1.25
25 with name or number only.....	.50	.60	.80

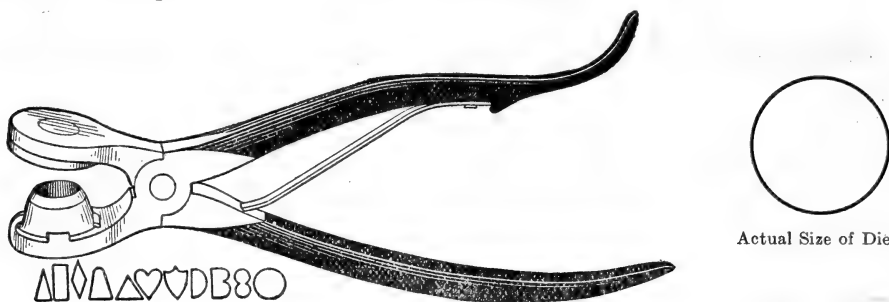


Cattle Size



Sheep and Hog Size

OUR SPECIAL PUNCH—This punch combines cheapness and reliability, and supplies the long-felt need of a cheap but serviceable ear-marking tool. The dies are all made of the very best steel obtainable, the handles are of malleable iron, thus insuring complete satisfaction. Be sure to state number of die you want when ordering.



Price, fitted with any die \$1.75
Postage extra40

COOPERS FLUID DIP—Sanctioned by Government for use in official Dippings for Sheep Scab. Positively the best of all Liquid Dips. A pure highly concentrated transparent Liquid of marvelous strength and penetrative power. Requires no addition besides water. No sediment. No stirring. Mixes with Cold Water, whether hard, brackish, alkali or salty. A triumph of Chemical Skill. **Splendid for Goats, Hogs and Cattle.** A powerful Disinfectant and Insecticide for all purposes. **Prices: 1 Gallon Can, \$1.60; 5 Gallon Can, \$7.75. One gallon makes 120 gallons, Government Strength, for Scab curing. For Ticks and Lice in Sheep, 1 gallon makes 150 to 200 gallons, according to conditions.**

COAL TAR DIP—Effective and reliable destroyer of Insect Pests on Sheep, Horses and Cattle. Efficient disinfectant for general use on Farm, Ranch, in the Poultry Yard and Household. **Prices: 1 Gallon Can, \$1.25; 5 Gallon Can, \$5.00.**

COOPER'S WORM TABLETS—An infallible remedy for all Intestinal Worms in Sheep, Hogs, Cattle and Horses. Dose: For Lambs and Shoats, 1 tablet. For Sheep and Hogs, two tablets. For Cattle and Horses, eight tablets. **Box of 100 tablets \$1.50 post-paid.**

GARTON-COOPER SMUT KILLER—A triumph of Agricultural Chemical Skill. Used by us for years. Positively the most effective—and therefore cheapest—Smut Killer on the Market. **1 qt. Can, 75c; ½ Gallon, \$1.50; 1 Gallon, \$2.75**

SUMMER'S STOCK CONDITIONER—A condition Powder of recognized Merit, suitable for all animals. Braces Constitution, purifies the Blood, insures healthy condition. **25 lb. Pail, \$1.75; 50 lb. Drum, \$3.25; 100 lb. Drum, \$6.00.**

SUMMER'S WORM POWDER—A Standard American Remedy of 30 years standing, unequalled for Sheep, Horses and Hogs. Regularly fed to millions of animals every year by thousands of stockmen. **Prices: 3 lb. Pkts., 50c each; 7 lb. Pkts., \$1.00; Per Case, 70 lbs., \$8.00.**

POULTRY SUPPLIES

SANFORD'S MICROZONE—Will cure Roup, Cholera, Indigestion, Bowel Complaint, Canker, Frosted Combs, Chicken Pox, Swelled Heads, Sores, Cuts, Wounds, Sore Eyes, etc., etc. **Per Bottle, 50c. Full descriptions on each bottle.**

SANFORD'S ROUP CURE POWDER—A guaranteed Cure. **50c and \$1.00 per box.**

SANFORD'S MAGIC EGG PRODUCER—Contains all necessary egg-making elements in accurate and scientific proportions. Full directions on each package. **Prices: 2½ lb. Pkt., 25c; 16 oz. Pkt., 15c; 12½ lb. Sack, \$1.00.**

SANFORD'S INSECT POWDER kills insects on Poultry, Live Stock and Plants. **16 oz. Sifter Can, 25c; 3 lb. Can, 50c.**

SANFORD'S MILK OIL—Disinfectant, insecticide. Purifies everything. Natural enemy of Filth. Kills all Offensive and Foul Odors. Keeps the Chicken Houses and Yards pure and prevents Disease. Pint Can makes 12 gallons of powerful and Effective Disinfectant. **Prices: 1 pint, 25c; 1 Gallon, \$1.25.**

SANFORD'S LICE KILLER, otherwise known as Rice's Lice Print. A wholesale Lice and Vermin Destroyer, saves time, expense, and labor. **Prices: 1 qt., 35c; ½ Gallon, 65c; 1 Gallon, \$1.00. Galvanized Sprayer, 60c.**

SANFORD'S CHOLERA CURE—Used in drinking water. Reliable Cure for Cholera, Bowel Trouble, Indigestion, Dysentery, Diarrhoea, etc. **Price, 50c.**

USEFUL INFORMATION FOR THE FARM

Plastering.

Plastering laths are usually of white or yellow pine, 1 inch wide, $\frac{1}{4}$ inch thick, and 3 or 4 feet long. They are nailed up horizontally about $\frac{1}{2}$ inch apart. The upright stud or partitions are spaced at such distances (usually about 15 inches, center to center) that the ends of the laths may be nailed to them. Laths are sold in bundles of 1000 each. A square foot of surface requires $1\frac{1}{2}$ four-foot laths. 1000 such laths will cover 666 square feet. A carpenter can nail up the laths for from 40 to 60 square yards of plastering in a day of 10 hours, depending on the number of angles in the room, etc.

Plastering is always measured by the square yard for plain work, by the superficial foot for cornices of plain members, and by lineal foot for enriched or carved mouldings in cornices.

PLASTERING

Estimate of Material for 100 Square Yards

Materials	Two coats slipped coat finish	Three coats with hard finish
Quicklime.....	$3\frac{1}{2}$ casks	4 casks
Quicklime for fine stuff....		$\frac{2}{3}$ cask
Plaster of Paris.....		$\frac{1}{2}$ cask
Laths.....	2,000	2,000
Hair.....	3 bushels	4 bushels
Common sand.....	6 loads	7 loads
White sand.....		$2\frac{1}{2}$ bushels
Nails.....	13 pounds	13 pounds
Mason's labor.....	$3\frac{1}{2}$ days	4 days
Laborer.....	2 days	3 days

Shingles.

The best shingles are of white cedar. When of good quality, they will last 40 to 50 years in our northern states. Cypress and White Pine are much used for shingles, but will not last half as long as white cedar.

Shingles are packed 250 to the bundle, or 4 bundles to 1000.

1 bundle of 16-inch shingles will cover 30 square feet.
1 bundle of 18-inch shingles will cover 33 square feet.

When laid $5\frac{1}{2}$ inches to the weather, 5 pounds fourpenny, or $3\frac{3}{4}$ pounds threepenny nails will lay 1000 shingles.

Clap-Boards.

1 bundle laid $3\frac{1}{2}$ inches to the weather will cover 26 square feet.

Laying Down Land to Permanent Pasture.

A good Seed Bed is essential—A careful preparation of the Seed Bed is of the greatest importance.

It should be well drained, thoroughly cultivated, and the soil made Firm with a very fine level surface otherwise many of the Finer Seeds cannot germinate.

Grass Seeds.

When and How to Sow—Grass Seeds should be sown early in April. Choose a Still, Calm Day, when Soil is sufficiently dry to prevent the Roller Clogging. Make ground level and firm. If Broadcasted take care to distribute Seeds evenly, then harrow lightly, covering Seeds just as lightly as possible. This operation should be followed by rolling the Field all over. The Spring Rains will follow and render the surface as firm as required.

Sowing with or without a Grain Crop—Many Agricultural writers argue in favor of sowing without a nurse Crop. With our intimate knowledge of the Corn Belt, however, we unhesitatingly recommend that permanent Pasture be sown with a Grain Crop as nurse. Light Seeding of Grain, however, should only be used. Say in the Case of Barley, one bushel per acre, or in the case of Oats, $1\frac{1}{2}$ bushels per acre. Take care that none but stiff Straw varieties be sown to prevent lodging which too often means suffocation of the Grasses. If the Seed is to be sown under Grain the mixture may be sown at the same time as the Grain, or when the Latter is about two inches high.

After-Management—The Success of a Pasture depends materially upon its subsequent treatment. In order to allow the young plants to gain sufficient Strength to cover the land, it is not advisable to allow Live Stock to Run upon the Stubble in Autumn, nor yet to graze the Pasture in the early Spring. Best results are obtained when the Field is Mown for hay the first year, just as they are beginning to flower in June. After that the Pasture may be grazed by Live Stock for the remainder of the Season.

Something worth knowing about Seeding.

If it is desired to sow some legume crop in the grain, with a view of plowing it under in the fall, sow 2 to 4 lbs. of medium red mammoth or crimson clover.

Sow grass seed early in the spring in firm, mellow, rich, moist soil.

On light, sandy, or sandy loam soils, sow grass seed with the drill, as it is less likely to dry out in dry seasons.

Grass crops, especially clovers, are our most valuable soil-building crops, as their extensive root systems open up the subsoil and increase the supply of humus.

It costs less than four dollars to grow and save an acre of hay, while it costs from \$8.00 to \$11.00 to grow an acre of corn.

USEFUL TABLES FOR THE FARM

Quantities of Field Seeds Required per Acre and Number of Pounds to Bushel

	No. Lbs. to Bu.	No. Lbs. to Acre
Red Clover.....	60 8	to 10 lb.
White Clover.....	60 6	to 8
Alsike Clover.....	60 8	to 10
Lucerne or Alfalfa Clover.....	60 20	to 30
Red Top Grass.....	14 15	to 20
Orchard Grass or Rough Cocksfoot.....	14 15	to 25
Kentucky Blue Grass for Pasture.....	14 20	to 50
Kentucky Blue Grass for Lawn.....	1 lb. for 15x20 ft. sq.	
Lawn Grass, Blue Grass for Lawn.....	1 lb. for 15x20 ft. sq.	
Timothy.....	45 12	to 15
German or Golden Millet.....	50 25	to 35
Common Millet.....	50 25	to 35
Hungarian Grass.....	48 25	to 35
Bermuda Grass.....	2	to 3
Mixture for Permanent Pastures.....	14 30	to 50
Spring Wheat.....	60 1½	to 2 bu.
Winter Wheat.....	60 1½	to 2
Buckwheat.....	52 1	to 1¼
Seed Barley.....	48 2	to 2½
Seed Oats.....	32 2¼	to 4
Seed Rye.....	56 1½	to 2
Seed Corn.....	56 4	to 6 qt.
Broom Corn Seed.....	48 4	to 6
Cane Seed, for Sugar.....	50 4	to 8 lb.
Cane Seed, for Fodder.....	50 25	to 50
Field Beans.....	60 1½	to 2 bu.
Field Peas.....	60 1½	to 2
Flax Seed.....	56 1	to 1½
Cow or Southern Peas.....	60 1	to 1½
Beans, Dwarf Garden.....	60 1	to 1½
Peas, Garden.....	1	to 1½
Potatoes, Irish.....	60 10	to 12
Onion Sets.....	10	to 12

Square Measure.

144 in. =	1 sq. foot.
1,296 in. =	9 sq. ft. = 1 yd.
39,204 in. =	272.25 sq. ft. = 30.25 yds. = 1 perch.
1,568,160 in. =	10,890 sq. ft. = 1,210 yds. = 40 perch = 1 rood.
6,272,640 in. =	43,560 sq. ft. = 4,840 yds. = 160 perch = 4 rods = 1 acre.

An acre is 69.5701 yards square, or 208.710321 feet square.

A township is 6 miles square = 36 sections.

A section is 1 mile square = 640 acres.

A quarter section is ¼ mile square = 160 acres.

One-sixteenth section is ¼ mile square = 40 acres.

Solid Measure.

1,728 cubic inches =	1 cubic foot.
46,656 cubic inches =	27 cubic yards.

Capacity of Cistern in Gallons for Each 10 Inches in Depth.

Dia. in ft.	Galls.	Dia. in ft.	Galls.	Dia. in ft.	Galls.
2	19.5	6½	206.85	12	705.
2½	30.5	7	239.88	13	827.4
3	44.6	7½	275.4	14	959.6
3½	59.97	8	313.33	15	1,101.6
4	78.33	8½	353.72	20	1,958.4
4½	99.14	9	396.56	25	3,059.9
5	122.4	9½	461.4	30	4,406.4
5½	148.1	10	489.6	35	5,990.
6	176.25	11	592.4	40	7,831.

Weights and Measures.

The "standard unit" of the United States and British linear measure is the yard. It was intended to be exactly the same for both countries, but in reality the United States yard exceeds the British standard by .00087 inch. The "actual standard of length" of the United States is a brass scale 82 inches long prepared for the Coast Survey and deposited in the office of Weights and Measures at the United States Treasury Department, Washington. The yard is between the 27th and the 63rd inches of this scale. The temperature at which this scale is kept is designed to be standard. The temperature at which it is used in the United States Coast Survey is 62 degrees Fahrenheit.

Long Measure.

12 inches =	1 foot.
36 inches =	3 feet = 1 yard.
72 inches =	6 feet = 2 yards = 1 fathom.
198 inches =	16.5 feet = 5.5 yards = 2.75 fathoms = 1 perch or rod.
7,920 inches =	660 ft. = 220 yds. = 110 fathoms = 40 rods = 1 furlong.
63,360 inches =	5,280 ft. = 1,760 yds. = 880 fathoms = 320 rods = 8 furlongs = 1 mile.

Dry Measure.

Pint =	33.6 cubic inches.
2 pints =	1 qt. = 67.2 cubic inches.
8 pints =	4 qts. = 1 gal. = 268.6 cubic inches.
16 pints =	8 qts. = 2 gals. = 1 peck = 537.6 cubic inches.
64 pints =	32 qts. = 8 gals. = 4 pecks = 1 bushel.

Note.—The standard United States bushel is the Winchester bushel. Is in cylinder form, and is 18½ inches diameter, 8 inches deep and contains 2,150.42 cubic inches.

The English imperial bushel = 2,218.192 cubic inches, and 1.03152 U. S. bushels.

The English quarter = 8 imperial bushels, or nearly 8¼ U. S. bushels, or 10,2694 cubic feet.

The United States standard of weight is the "Troy pound" adopted in 1827.

An American Car Load

Of 20,000 pounds would contain either of the following: 70 barrels salt; 70 of lime; 90 of flour; 70 of whiskey; 200 sacks of flour; 6 cords of soft wood; 15 to 20 head of cattle; 50 to 60 head of hogs; 80 to 100 head of sheep; 6,000 feet of solid boards; 340 bushels of wheat; 400 of corn; 680 of oats; 400 of barley; 360 of flaxseed; 360 of apples; 430 of Irish potatoes; 300 of sweet potatoes; 1,000 of bran; 130 to 190 barrels of eggs; 15,000 to 26,000 pounds of butter; 200 kegs of nails.

Note.—On Eastern roads, with track in best condition, a car load is from 24,000 to 60,000 pounds.

Strength of Ice

A thickness of 2 inches will allow the passage of men in single file on a line of planks placed on the ice. No other row of planks should be placed nearer than 6 feet.

A thickness of 5 inches will allow the passage of cavalry carts or light guns, with a moderate interval between each.

A thickness of 6 inches will allow the passage of wagons drawn by horses, etc.

A thickness of 10 to 12 inches will support the heaviest loads likely to pass over it.

HOW TO PREPARE A SEED BED FOR PEDIGREE SEED OATS

QUANTITY OF SEED PER ACRE—Owing to the immense size of the New Oats, it must follow that one bushel of the same will not contain the same number of individual berries as in a bushel of ordinary oats. Therefore, to obtain the same number of plants per acre, it is essential that the new oats be sown thicker than ordinary oats. We strongly recommend that no less than three bushels per acre of American Grown Oats, or four bushels of Imported, be sown to insure the best results.

EARLY SOWN OATS BEST—It is essential that the new Oat should be sown as early as the farmer can get his land in shape. The longer the period of cool and favorable weather the better the Oats will finish. Don't be afraid of freezing out, but if your land is in shape, go ahead and sow.

PROPERLY PREPARED SEED BED POSITIVELY NECESSARY—You all know that if a thing is worth doing at all, it is worth doing well. The Oat crop has enough natural disadvantages to contend with. You must give it all the chance you can and not handicap it by sowing on land ill prepared or out of condition. If the following instructions are carefully carried out, the little extra labor involved will be well repaid. While we are on the subject, we would say it is possible to throw away hundreds of dollars on a crop by not paying the proper attention to the seeding and preparation of the Seed Bed. That is just as important as the seed if a full crop would be secured.

THE RIGHT WAY TO PREPARE A SEED BED—Generally speaking, shallow plowing or double discing is highly recommended. In the corn belt it is generally acknowledged that on corn land a heavier yield of Oats can be obtained by discing in preference to plowing. In either case it is an advantage to run over the land before actually seeding the Oats with a double harrow. A shallow mulch, however, from 2 to 3 inches deep, is necessary for the young plants to commence root development. As the roots are the feeders for the plant, much depends upon this simple operation.

DRILL YOUR OATS—We strongly recommend drilling in preference to broadcasting, as by the drill a more uniform distribution of seed is obtained and the seed itself is covered at an even depth. In addition to this the soil is made firm, which is in itself an advantage in a seed bed after sowing. Nothing further than this is necessary, as the Spring rains will complete the operation of making firm the Seed Bed.

Don't select the richest piece of land on the farm on which to sow Garton's Pedigree Grains. Raise them under exactly the same conditions as ordinary grain, side by side. They cannot cross or mix. Just leave a foot or two to divide them from other sorts, so that you will not mix them when harvesting.

Garton's Barley, Seed at the rate of $1\frac{3}{4}$ bu. to 2 bu. per acre.

Garton's Wheat, Seed at the rate of $1\frac{1}{2}$ bu. to 2 bu. per acre.

FOR FALL SOWING

We issue a separate abridged Price-List of Wheats and other Grains, as well as miscellaneous Seeds for Fall Sowing, early in August. A copy will be gladly mailed to our Friends on receipt of inquiry at that time. The following are featured strongly as we make specialties of same:

GARTON'S SELECTED TURKEY RED WHEAT (Minn. No. 529)—This is a specially selected Strain, raised from individual heads of proven merit. It is unquestionably the hardiest Winter Wheat that can be raised in the Mississippi valley, and is grown extensively in Kansas, Oklahoma, Nebraska, Iowa and Illinois. Its merits are so well known and appreciated, as not to require further endorsement from us. In Minnesota Bulletin No. 115 it is described as "The best yielding variety of Winter Wheat at the Minnesota Experiment Station."

GARTON'S SELECTED WINTER VETCH (*Vicia Villosa*)—Recleaned Seed of this valuable Seed for Fall sowing—sometimes known as Sand or Hairy Vetch—is fully described on page 25.

GARTON'S SELECTED WINTER RYE—A very heavy yielding variety which should be sown (according to the State in which it is intended to be raised) from August to November. **Write for full particulars, samples and prices.**

A FEW QUESTIONS OFTEN ASKED REGARDING GARTONS REGENERATED AND NEW BREEDS OF GRAIN

Will Gartons Regenerated Grains Produce Stronger and More Robust Plants Than Common Grain?

YES:—Ordinary grain as a rule does not contain sufficient Plant Food in the berry to feed the young plant until it makes roots and becomes self-supporting. Garton's Regenerated grains are fully developed, having large plump berries containing a store of Plant Food whereon the young plant feeds. If it happens that the weather conditions are unfavorable in the early stages of growth, the plant food contained in the Regenerated Berry is sufficient to carry the young plant through the critical period. It produces a robust plant, instead of the puny and weak plant which would be the case of ordinary grain.

Why Will Gartons Regenerated Grain Produce More Bushels?

BECAUSE THEY HAVE ACTUAL BREEDING BACK OF THEM—You go to a good Pedigreed Sire when breeding your live stock, as you want a good animal, although it might be possible to secure the services of a Scrub Sire at half the cost or less. You don't want to take the chance—so why do you take the chance with grain? Good Pedigree Grain that has been produced by actual Breeding grows a good healthy plant, with bigger heads and more grain on them. They resist Rust and are less liable to Lodge.

Will Gartons Regenerated Grains Mix If Sown Alongside of Other Grains?

NO:—All small grains are inbreeders absolutely; that is, the male and female are enclosed in the small hull until after fertilization and, **unlike corn, cannot cross from one plant to another.** Although growing side by side small grain will always remain pure if the grains do not get mixed during sowing or threshing.

Will They Stand in Good Land?

YES:—Because by the Garton System of Regeneration, increased strength is given to the entire plant, and the straw is consequently stronger and stands up better than ordinary oats which are run out and have no vigor.

Prices Are Very High?

NO:—On the contrary, if you will figure it out for yourself in dollars and cents, you will find that they are actually cheaper than ordinary Seed Oats. Remember, your first cost of Pedigree Seed is not totally in excess of what you would pay to seed your land. This year, for instance, any kind of Local Seed Oats must cost you at least 50c per bushel. Therefore, figuring out in the case of the New President and Regenerated Swedish Select Oats, your first extra cost is 75c per bushel. Allowing three bushels per acre it amounts to \$2.25 per acre. Last season Reports received from Customers showed that the average increase of these Pedigreed Grains over all others against which they were tested amounted to upwards of 15 bushels per acre. Just think of 15 bushels extra **per acre.** But to be conservative, figure less than half of that increase and call it seven. At the value of even Ordinary Oats it amounts to \$3.50 per acre. Therefore, your increased yield in the first Season has more than paid for your outlay. In addition to this you have the satisfaction of knowing that you have a whole Crop of Pedigree Oats, which has been raised at a cost of something less than the Market Price. It costs even more in ratio to breed these Regenerated Grains than it does to breed Pedigree Live Stock, yet the cost of producing a crop of Pedigree Seed Grain is actually less than that of producing ordinary grain. Whereas, taking into consideration the increased number of bushels per acre it is possible to raise by sowing these Regenerated Grains in place of ordinary seed grains, and in view of the high percentage of germination, it is actually cheaper to sow the new, vigorous grain instead of the worn out, common kind.

Must the Farmer pay his Money before he has a chance of telling whether the Grain supplied is up to the Samples sent out and equal to the description in the Catalog?

NO:—We guarantee to deliver our Seed Grain right up to the samples sent you, and you are invited to inspect the grain we ship you at your Railroad Station, **before paying the draft at your local bank.**

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